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SEPTEMBER 1971 • MAC 75¢ 16217 U.K. 25p.

Galaxy

MAGAZINE OF SCIENCE FICTION

4 GREAT NEW NOVELETTES!

DAZED • Theodore Sturgeon

SISTER SHIPS • A. Bertram Chandler

GALILEAN PROBLEM • Duncan Lunan

THE EDGE AND THE MIST • Gordon Eklund



Galaxy

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SEPTEMBER 1971

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If you have never asked yourself either of these questions, it is time you read SACRED LOCOMOTIVE FLIES, in which Dick Lupoff *does* ask them. Whether he answers them is another matter. Along the way, we encounter the Sacred Locomotive, the Israeli hyponuclear submarine *Traif,* the Phantom Tanager (and/or Cockatoo, etc.), Mavis Montreal the groupie, the enormous cavern beneath the earth, Ali the lady Mars pilot, and other denizens and features of the world of 1985. And each thinking reader will ask himself more than once: "It could get *this* bad in only fourteen years? Or is it this bad *now?*"

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September-October 1971 **Vol. 32, No. 2**

NOVELETTES

THE EDGE AND THE MIST 2
Gordon Eklund

DAZED 31
Theodore Sturgeon

SISTER SHIPS 52
A. Bertram Chandler

GALILEAN PROBLEM 148
Duncan Lunan

SERIAL [Part II]

THE MOON CHILDREN 93
Jack Williamson

SHORT STORY

WHY JOHNNY CAN'T SPEED 82
Alan Dean Foster

FEATURES

GALAXY STARS 51

GALAXY BOOKSHELF 144
Algis Budrys

Cover by GAUGHAN, suggested by THE EDGE AND THE MIST

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I

THE EDGE

THE aliens stood in clots, leaning and cuddling and nestling near the bar. A dark human with bristly black hair and long gangly arms faced them. The man's eyes traced a path from alien face to alien face. His hands, held before him, shook.

One alien laughed. His skin was the color of cold sea water, his eyes as dark as mountain lakes. He moved forward on three legs, still laughing, and stopped before the man, who bowed his head.

The alien lifted a clawed hand. Slowly and carefully he struck the man across the face. The man bounded across the narrow room. His head struck the far wall. He bounced off the wall and landed on the floor. He lay on his back, unmoving. His eyes were open. The alien moved forward and stepped on the man's face.

The man did not speak.

Many of the aliens at the bar were laughing, as were two other humans in the room. The alien glanced over his shoulder and joined the laughter.

The dark man on the floor rolled over. His face was spotted with blood. He wiped some of it off with



Beyond one lay the other, and man's last challenge!

THE EDGE AND THE MIST

GORDON EKLUND

the back of his hand. The alien reached into his tunic for a coin, tossed it across the room. It rolled into a pit, making a sound like a sponge being struck by a rubber mallet.

The dark man turned his eyes on the alien, watching him open his tunic, walk to the edge of the pit and make use of it.

The dark man began to crawl. He pulled himself across the floor, using his knees and elbows. He peered into the pit.

No one was laughing now; all eyes watched the dark man and the pit.

The man moved his right arm. It slid down into the pit, twitching, the fingers shaking, opening and closing as if grasping at the molecules of air.

A big man came through the doorway. He looked at the pit, shook his head and strode forward. He raised his foot, stepped on the dark man's arm.

For a moment the hand continued to twitch. Then the dark human turned and looked at the big man. His lips formed a word soundlessly. *Bastard.*

The big man reached down and with both hands lifted the dark man into the air. He threw him away from the pit, then turned on the laughing alien.

The alien stopped laughing.

THE dark man lay on the floor. Suddenly he rose to his feet. He sprinted forward, grabbing a chair as he ran. He lifted the chair and dropped it solidly across the big man's shoulders. The big man fell, rolled to his knees, shook his head and dropped on his face.

The dark man stood over the big man. The broken chair dangled in the dark man's fist.

"You son of a bitch," he spat at the motionless big man.

The alien was laughing again. He came forward, pushed the dark man out of his way and crouched beside the big man. He went through the man's pockets carefully. He removed some bits of paper and a few coins. He waved at two aliens who stood at the bar. They joined him and the three of them began to pull the big man toward the door.

The big man came awake and lashed out with both feet. Two of the aliens went down. The third took a blow to the face as the man rocked erect. A few at the bar jumped forward. Some held knives.

The big man backtracked until he stood against the wall.

The aliens continued to close in. The one who had laughed led the pack. He was no longer laughing. A trickle of blood ran from one corner of his mouth. A light and tinkly music came from the bar and infiltrated the incipient violence with mock serenity.

The dark man said, "Stop."

He stood behind the aliens, a gun in his hand. One of their number lay unconscious on the floor, an empty holster around his waist.

The dark man said, "Get over to one side—all of you."

The aliens moved away from the gun. The big man picked a knife from the floor and joined the dark man.

He said, "Thanks."

The dark man said, "Yeah."

Together they eased toward the door. It dilated and they went out.

On the other side they waited. Almost immediately the door began to open. The dark man fired a charge through it. The door slammed shut.

"Ought to keep them," said the big man. He reached into his tunic and pulled out a narrow cigarette. He put it between his lips and puffed. The cigarette ignited and he handed it to the dark man. "Try this, Quinn. Calm your nerves."

"You want me with calm nerves?" Quinn puffed on the cigarette. Its fumes were pink and fragrant.

"We're going out," the big man said.

"Who's we?"

"Me. Deak. And you."

"You want me?"

"You were good once. I can't find any who're good now. You'll have to do."

"Thanks. A madman, a cripple, a toxer. That's all?"

"That's all."

Quinn stepped on the cigarette. "Give me another. When do we go?"

"Four or five days. I got a ship today."

"Enough time for me to crack it, right?"

"If you want to bad enough."

Quinn dropped the second cigarette, half-smoked. "These things give me a headache. Hawkins, you're a bastard."

"I always was," Hawkins said.

THE EDGE was what everyone always called it. Never was it known by its more rightful and proper designation: 3D7698. The Edge was what everyone called it for two reasons. The first reason was simply that it had originally been designed by a man named Edge. Jacob Andre Edge was long since dead and gone, but back then, at the beginning, he had been the man who designed 3D7698. The second reason for the appellation was that the Edge was an artificial planet, large enough to support a population of a half-million, circling the galaxy, but outside of it—at the edge, the brink, the end. And so: the Edge.

The boy was called Alpha and for one simple reason: that was his name. He rode the corridors of the Edge, his destination firmly in mind, his contact lenses tinted a deep shade of violet—a young man, actually, say about twenty-one, with blond wavy hair, a lanky lean build, thick lips and a face young and flat, untouched by the lines of hard living that characterized most human faces around him. He rode the corridors, looking neither to the left nor right, passing people and aliens, but none stopped to greet him, to say hello, for none knew him. He had lived a day and a half on the Edge and that time had been spent asking questions and pumping hands but not making friends or even enemies, for Alpha was a man (or boy) with a job to be done and a job to be found and he had no time for all the extras. Maybe when he was older. Perhaps then. But not now. Not yet.

Alpha jumped off the moving corridor and stood in front of a door. He lifted his face and allowed himself to be scanned. The door dilated and he passed through it. Immediately he put his hands on top of his head and froze.

Two men were in the room. One was big as a space cruiser with a long red crease—probably a heatgun scar—running along one cheek. He held a heatgun in his right fist. It was pointed at Alpha's belly. The second man was small and old. He sat, grinning into Alpha's eyes.

The first man asked, "And who the hell are you?"

"Are you Hawkins?"

"That's my name. What's yours?"

"Alpha. May I sit down?"

"No. What do you want?"

"I want to talk to you."

The old man said, "He's all right. Look at him. The way he's dressed, the way he stands. He hasn't been on-planet a week."

Hawkins frowned and said, "Shut up, Deak."

"No," said the old man.

Hawkins looked back at Alpha and said, "Well—talk."

Alpha started to reply. But where was it—the speech he'd so carefully prepared back home, the one he'd just finished rehearsing for the nine-hundredth time? What had happened to it?

At last he said, "I'm not armed."

"I know that," Hawkins said. "The door told me." His voice echoed strength and a lot of living. And wisdom, too, Alpha thought, and glory. *This is him; this is Hawkins*. "What I want to know is what you want."

"I want a job," Alpha said weakly. "With you."

The old man, Deak, laughed. "I told you," he said. "I knew it."

"Shut up, Deak. Who sent you here?"

"Nobody sent me."

"Don't lie to me. Somebody had to. I don't advertise for help."

"Well—there was my mother. She—"

"Your what?"

Deak was laughing again, shaking, waving his hands, slapping his thighs.

"He said, his mother."

"She knew you once," Alpha said. "She told me about you. Her name was Leona Carse. From Hickley. Don't you—"

"I remember her," Hawkins said.

"She used to talk about you all the time and she always said you'd help me when I needed help and you'd put me up when I needed that. I've heard your name ever since I was a kid, ever since I was old enough to listen and understand." Deak had stopped laughing; now he was listening. "She died last month and left me just enough credit to come here. It took a while, hopping from planet to planet. They say you're going to try to crack the Mist. I want to go along."

"You're out of your mind," Hawkins said. He pointed at a chair and Alpha sat down.

"SOUNDS like an honest story to me," Deak said.

"Nobody asked for your opinion. How old are you?

"Twenty-seven," Alpha said.

"And you want to try to crack the Mist?"

"My mother said you were only twenty the first time you went out there."



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"That was different. People grew up faster then."

"Give me a chance."

"You ever been in a cruiser? Except as a passenger?"

"No, but you need one man like that. Somebody to do the dirty work, cleaning up. The experienced men will be needed elsewhere."

"Deak's going to do the dirty work."

"Not me," Deak said. "I've got more experience than any other three men. I'll be one of them that's needed elsewhere."

"Shut up, Deak."

"Are you going to take this boy along? You know we need another hand. Considering."

"No," Hawkins said. "I'm not taking him."

Deak rose to his feet and walked toward Alpha. He walked with a limp, leaning toward the right, and when he passed the table Alpha saw that his foot was missing. The boot at the end of his leg was empty.

"Come on with me," Deak said. "Mr. Hawkins has things to do."

Deak led him to the back of the room. A door dilated shut behind them and they were in a large bedroom.

Deak said, "You can stay here. Sleep here till we're ready to move."

"What about what Hawkins said?"

"Never pay any attention to what Hawkins says. He never means it anyway. That's why he keeps me around: to explain to people what he's thinking. He wants you to stay. He remembers your mother same as me."

"You knew her?"

"Sure, all of us knew Leona. Here—sit down and I'll tell you about it."

Alpha sat on a bed and Deak took a seat across from him. A third man was in the room. He was lying on one of the beds, flat on his back, eyes closed. He had thick, dark, curly hair and a smile on his lips. His mouth was open and he was snoring.

Deak said nothing about the third man. He said, "I was still a captain back then. Hawkins was with me. Just him and me, going from planet to planet, running a private shuttle, and on one of them we met your mother. I fell in love with her instantly, but it was Hawkins she liked. Couldn't blame her. He was younger and bigger and smarter and a lot more fun. The three of us went everywhere together and when it came time to move on she went with us. I was the captain but I couldn't very well say no. Not that I wanted to."

Deak's story continued to another planet, rambled about these aliens and how Hawkins did this and Leona did that and how she was right all along. The story took a long time to tell but it was a good one.

"Those were the five best years of my life," Deak said. "Hawkins', too, I imagine. When Leona said she was through, that she was going back home, well, we came out here and Hawkins hasn't thought of a thing since except that blanket of mist out there. Me, I've got hobbies and old age to keep me occupied. Hawkins has got the Mist and that's all. But I'm glad you've come. For a long time it's just been me and Hawkins and Quinn—" he pointed at the sleeping man—"but I know it'll never be the same again, even with you here."

Alpha said, "Tell me about Hawkins."

"You don't know about him? What's there to tell that's not known by half the galaxy?"

"What about the Mist?"

"Not much to tell there, either. Hawkins was the first to prove definitely that it circled the galaxy, that it was a fence around our cage. Ever since then he's wanted to break out of the cage."

"And who's he?" Alpha pointed at the sleeping man.

Deak laughed. "His name is Quinn. He's the assistant commander. Three-man crew and we've got a commander and an assistant. Four-man crew now—with you."

"Is he—"

"Toxed. Sure. Quinn's always toxed now. He used to be good, but that was before he died."

"He doesn't look dead."

"He's not—now. He went into the Mist and when you go into the Mist things happen to you. What happened to Quinn was that he died and stayed dead for five days. He's never said what it was like. But he's been toxed ever since."

"And you still use him out there?"

"Sure. It doesn't seem to bother him and he was good once. That's what matters."

"I see."

"Sure you do." Deak stood. "Well, you must be tired. I'll let you get some sleep. Don't let Quinn bother you."

And he left.

II

WHEN DEAK emerged from the back bedroom he was grinning widely and chuckling gently. He liked the boy, was pleased to have somebody around who hadn't yet grown sick of hearing his old stories, who wouldn't immediately tell him to shut up. Deak liked the boy a lot and Deak was the kind of man who, when he liked someone or something, liked for keeps.

He sat down at the table in the middle of the room, after first checking the door, making sure the scanner was set and that the right reception was ready in the event of visitors. He thought about calling Hawkins down at the

tubes but thought better of it. Nothing important had happened yet and if Hawkins wanted him Hawkins would call.

"I'm old," Deak muttered, thinking, then laughed. He reached into the table and removed his film collection.

If anything had helped him survive the inactivity of age this was it. He knew it was wrong for him to still be living. Ninety-two was a good age for inactive men, for buttcrushers and Fed peepers, but it was bad for a man like him. He tried to imagine Hawkins at the age of ninety-two, tried casting his mind fifty years into the future. But it couldn't be done. Hawkins was a perpetual forty-year-old. When Deak had first met him Hawkins had been twenty physically and forty spiritually and in the years past his physical age had merely caught and surpassed his spiritual age. The latter had remained the same.

Deak removed a film from the case and placed it gently into the viewer. He was careful with it. The print was easily a couple of hundred years old—probably more. Deak knew he ought to have it reproduced, but he liked it this way—old and musty and nearly falling apart. All of his prints were old. Many had already disintegrated on him. But he didn't care. Soon it would be his turn to disintegrate and then none of it would matter any more.

He put his eye to the viewer and watched another time unfold. He knew the film by heart. There were these fellows in a place called the Argentine and they were flying aeroplanes through the atmosphere of Old Earth. One of them was going blind and another shrugged in the face of death and there was a woman. It was the woman Deak most appreciated in this one. She was (he often let himself think) Leona—and the young guy was Hawkins and the old one, the one going blind, that was him. There was even a part for Quinn. It all fit. Deak loved these old things. They were all he had left to love.

The door dilated and Deak jumped. Four men came fast into the room and the fat one said, "Stand where you are."

Deak stood.

"Where's Hawkins?"

"He's not here. How—"

"I run this place," the fat man said. "When I want to get into a cabin, I can do it. Now tell me where he is."

"Who was that?" said Deak. He recognized the fat man now. His name was Nyby and he was Federation governor for the Edge. One never saw too much of him despite his big title, and this time he had three men with him. The men were carrying guns.

"Hawkins," said Nyby. "Who do you think?"

"He's down in the tubes."

"We'll wait for him. I have something I want to show him." Nyby turned to one of his men. "Go see if there's anyone else here."

The man headed for the back. Deak sat down at the table and said, "Another warrant? You're wasting your time. Hawkins doesn't care about paper orders. When he wants to go, he's going."

"I've got something more effective this time. Where he's going is into custody."

DEAK said nothing. The man came out of the back room. Alpha walked ahead of him. Quinn came next, rubbing his eyes and yawning.

Quinn said, "I told you not to wake me up till I wanted up. What kind of alarm is this guy?"

He pointed at Nyby.

"He's got a warrant to put Hawkins into custody," Deak said.

"Fat fool," Quinn said. He sat down on the floor and grabbed his head. He moaned once, then looked at Deak. "Where is he?"

"Tubes."

Quinn looked right at Nyby and said, "Fat fool." He jerked his head at Alpha. "Who's this?"

Deak explained and Quinn nodded. They talked as if they were alone in the room. Nyby began to fidget impatiently.

Quinn asked, "What are you viewing?"

Ballantine Books

NOW here it is July-August olreody. By God, you can hordly turn around. If June was Silverberg and Niven country, July is really a wild clutch of folk. Reissues of Bradbury. And of course Lovecroft. (What *is* with Lovecraft? We've all known he was good, if speciolized, for lo, these mony years. The bounce in soles his works ore getting con't oll be coming from a lunotic fringe. At leost we hope not or there are more of them oround thon mokes for eosy nights.) By controst, o delightful jope by (of all people) G.K. Chesterton, THE MAN WHO WAS THURSDAY. And in July olso, a full length novel bosed on o *Galoxy* novelette by T.J. Bass, HALF PAST HUMAN. Unnerving. A comer, thot one. Get in on the ground floor. Also a rich, weird, wonderful novel on a related theme (over-pop), CANDY MAN, by Vincent King.

•

IN this, the yeor of Larry Niven, August sees o novel by Dave Gerrold and Larry, THE FLYING SORCERERS, featuring thot lovable fellow Shoogar, whom you first encountered in *If*. The soles department has it thot funny sf covers don't sell, so it's not o funny cover. (But it's very good.)

And it's o very funny book. We hope you got your copies of RINGWORLD, PTAAVS, A GIFT FROM EARTH and NEUTRON STAR. It's our bet you'll need them ot the Con in September.

•

We ore especially delighted to note thot Hal Clement's novel STAR LIGHT is high up there on the Hugo nominee list. We'll be doing it in September—just might hove copies ready for the Con. But bock to the present . .

•

THE month of August is distinguished by the publicotion of THE CHILDREN OF LLYR, by Evongeline Wolton, the lody whose previous title in our Adult Fontosy series evoked on enormous response (THE ISLAND OF THE MIGHTY). And rightly so. She is a *powerful* writer. LLYR, on originol based on the Second Book of Mabinogion Welsh mythology, is o trogedy of the gods told in prose so distilled it is close to poetry. The style is completely different to thot used in the eorlier book and completely at one with the stork subject. Congratulotions, Miss Walton. You ore an honored and most welcome guest in our house. BB

"*Angels*," said Deak.

"Get to the death scene yet?" He turned to Alpha. "Ever seen that one? Must be three hundred years old."

Alpha said no.

Nyby said, "Shut up. All three of you. I don't want Hawkins alerted."

Quinn asked, "Why? Isn't it me you're really after?"

Nyby shook his head wordlessly.

Quinn pressed the point: "You're after the chance to kill me. It's as simple as that, right? You don't care about Hawkins or these others."

Deak grinned, listening. He remembered now about Quinn and one of Nyby's wives—or was it daughters? Yes, that was it: one of his daughters. Nyby was a prude; he had only one wife. It had been the daughter, down in the pits, screaming and shouting at her father in front of a few hundred witnesses, half of them aliens, and Quinn rolling in the sawdust, laughing.

Nyby looked at Quinn and said, "Shut your mouth."

Quinn said, "Fat fool, why don't you get out of here? She wasn't worth my time anyway."

Nyby glared.

Quinn said, "Not worth a bug's time—" And Nyby came forward. He slapped Quinn across the face. Quinn's head snapped back and he fell. When he rose there was blood on his teeth.

Deak grinned. Not at the blood; not at Nyby's raging face. He grinned at what he saw from the corner of one eye. The boy was moving on light feet.

Alpha's arm dropped and the gun hit the floor.

Deak ran, scooped up the weapon and trained it on Nyby. "First to move is a dead man."

Nobody moved.

Quinn wiped the blood from his lips and grinned. He said, "We're a team."

Deak tossed him the gun. "I'm going to call Hawkins. They're all yours."

Quinn nodded and went over to Nyby. The fat man cowered, anticipating the blow. It never came.

Quinn said, "Strip."

Deak grinned from the phone. Nyby was a prude. Nudity to him was something shameful, like a display of cowardice to a normal man.

Nyby removed his clothing. Naked he appeared even fatter than clothed. Deak completed his call and Quinn tossed him the gun.

He said, "Take him home by the most public route you can find. I'll give you ten minutes before I release the others. Then I'm going to go back to bed. Don't wake me."

Deak waited for Quinn to obtain another weapon, then pushed Nyby out. They hopped a corridor. Nyby kept his eyes down. Four women rode past, young, nearly naked themselves in nothing but spangled strings. The women looked at Nyby, recognized him, waved and laughed. The fat man's color went from light scarlet to deep flushed crimson.

Deak said, "It's a long way home."

DEAK and Nyby had been gone ten minutes. Quinn looked at the other three men and said, "Go home and don't stop anywhere you shouldn't."

The men departed hastily.

Alone with Alpha, Quinn dropped to the floor and grabbed his head. He began to moan softly.

Alpha watched him. He had wondered why Hawkins wanted a toxer in his crew. Now he knew. When Quinn wanted to be good no one was better.

Alpha said, "Can I get you anything?"

Quinn looked up, shook his head. "It's not bad now. It comes and goes. I can sleep. Besides, I'm used to it. Later I might need some help. But you can do one thing for me—tell me who the hell you are."

"Deak told you. Don't you remember?"

"I remember. Deak doesn't believe your story any more than I do but unlike me Deak is a gentleman. He doesn't say liar to people's faces. Me, I do."

Alpha decided to give it one last try. "I'm Leona's son."

Quinn waved a tired hand. "I knew Leona two years ago. She never had a son, not that she's aware of. I'm sure she would have told me."

"Does Hawkins know about you and Leona?"

"Never saw any need why he should. Or know about you either. I assume you were my replacement. Leona should have told you about me."

"She must have figured Hawkins wouldn't want a toxer around him."

Quinn shrugged lightly. "She doesn't know Hawkins very well. Now—tell me—what's your game?"

"Just what I said. I want to go into the Mist. Hawkins is the only one still going out there. So I decided to make his acquaintance."

"And Leona helped you."

"No. Why should she? I heard about Hawkins through her and I used what she told me. But I'm not a spy or anything. I'm a good guy."

"But why play this role?"

"Because I didn't think Hawkins would trust a stranger."

"You were right."

"And now?"

"And now nothing," Quinn said. "You're here and until you make a slip you stay. I'm going to bed."

He went. Alpha went over to the viewer and watched a movie that was three hundred years old. He liked it.

DEAK watched Nyby slide into his quarters and grinned at the closing door. He shouted, "And don't come out till you've got some pants on—" and, laughing, went away.

Deak could not respect any man who allowed himself to be humiliated by something intangible like the loss of a pair of trousers. Not that he could ever have held much respect for a man like Nyby under any circumstances. Deak rode the corridors outward toward the tubes, jumping from line to line with the genuine joyfulness of a man half his age. He felt fine.

Hawkins had told him to come out right away. Deak wondered about this. Hawkins hadn't seemed at all surprised by Nyby's visit. He might have been expecting it all along. But Deak knew what the consequences of the visit would be.

He asked himself two questions: *Are you afraid? Do you want to go?*

Afraid he ought to be. He had never been out before, had never allowed Hawkins to talk him into the Mist. Hawkins had been in it six times and Quinn twice. But they were mad. As far as Deak was concerned the Mist could stay unconquered. In a few thousand years, when the galaxy was filled with people, it would be time to worry about reaching other parts

of the universe. But not now. It was too soon. Nobody really cared.

Except Hawkins. And Quinn. And maybe the kid.

But they were crazy.

Deak wasn't crazy, but he was going out there this time. He wasn't crazy; he was old.

He was ready to die and when he died he wanted his friends near him. That's all there was to it. And so—the Mist.

Deak arrived at the tubes and slid off the final corridor. The place was nearly empty. The Edge had been originally planned as a jumping off point for intergalactic travel but the discovery of the Mist had put a stop to that. Now it was rarely used at all. Only three ships were presently in the tubes and one of them was Hawkins'.

Deak went over to him. Hawkins said, "Everything all right?"

Deak nodded and told him the conclusion of the story. Hawkins smiled with appreciation and pointed to the docked crusier.

"Get aboard," he said.

"We're leaving? Now?"

"I've got a few more things to do and I want your help. The others would only get in the way. When we're ready for them we'll call."

Deak nodded and moved obediently toward the ship. Hawkins called after him, "How's Quinn holding up?"

"Pretty fair. He hasn't hit the worst yet."

"I know," Hawkins said. "It's not going to be easy."

"You can dump him."

Hawkins shrugged and said, "Something's bothering you, too. What?"

"I'm wondering why you want to take me."

"Why shouldn't I?"

"I'm old," Deak said. "Past my prime. I've only got one leg and sometimes it seems like my mind has to fight its way through a bowl of thick soup before I can think a straight thought. I'm not going to do you much good out there."

Hawkins shook his head. "I need three men for this and I've got them. One of them is a toxer. Another is just a kid. You're old and crippled. But the kid's going to be good some day. Quinn was good once and he's going to be good again. You were good once, too, and maybe you've passed the point where you can go back. But you've got your memories, haven't you? You know what it was like back then. You're going to do me a lot of good out there. I need you."

Deak nodded. "That's all I wanted to know." He moved toward the ship.

III

THE MIST

IT HAD originally been discovered by sheer accident. One of the

very first faster-than-light intraspace cruisers had run smack into it.

The ship was the *Princess*. A minor error had dropped it outside the galaxy. The captain of the *Princess*, a curious and adventuresome man, had decided that since he was there (outside the galaxy) he might as well take a look around. He had prepared his ship for another intraspace jump, this time into adjacent darkness. He had jumped. And landed right back where he'd started. The captain had shaken his head and tried it once more. With the same results. Back again. The captain was not a fool. He went home. And filed a report. The report had been read and studied. An investigation had been conducted. The panel conducting the investigation had told the captain that he ought to stay where he belonged. Inside the galaxy. It was a big place. Unexplored. First things first.

The galaxy had remained a big place but it was no longer unexplored. There were other galaxies out there and perhaps it was time for man to take a look at them. The Edge was built. And the Mist was officially discovered.

The first ship made four attempts at four different places, each removed from the others by several thousand light years. The results were the same. The ship went into intraspace. And it moved. It came out again. It had not moved.

Another ship tried it. And another. Finally an enterprising captain decided to do it the slow way, with tiny jumps of only a few light years. In the course of this he became the first man to see the Mist with his own eyes. And the first man to enter the Mist in normal space. Three of his crew died. Two more were driven permanently mad. The others turned the ship around and came home. They spoke of a great and twisting mist of red and orange flames. They had photographic proof and they were believed.

Almost at the same time, at the opposite end of the galaxy, another ship found the Mist and entered it. All but one crew member died. He spoke of a fiery hell that circled the whole galaxy. He had photographic proof. And he was believed.

The Mist became an established fact. It was studied and charted. Nobody knew what it was, though everyone had his/her own pet theory. A few facts were known: The Mist circled the galaxy; it appeared red in color; it could control a ship in intraspace; it could control a human mind at any time. A few old-fashioned thinkers proclaimed it a visitation of the devil. A few, even more old-fashioned, said it was only God.

Over the years official missions attempted to crack the Mist by

passing over, around, or through it. Nothing succeeded and at last the Federation government lost interest. The galaxy was big enough for man. Too many had died trying to leave it. From now on the Mist—whatever it was, natural or unnatural, god or devil—could stay right where it was. Man still had room enough.

But there are always a few men who don't like to give up. Hawkins was one of these. Quinn had been another. Alpha was fast becoming one. Men like these continued to go into the Mist time after time, trying to crack it. None of them succeeded; the government frowned at their efforts, tried to stop them. But they kept right on doing it.

Hawkins thought of the Mist as a wall. If you butt your head against a wall often enough and hard enough, one of two things will happen: the wall will break or your head will break.

Hawkins had a tough head.

"THERE'S a ship out there," Alpha said. "At the edge of the Mist."

Hawkins came to stand behind him and peer into the viewscreen. The Mist was shown as a long area of turbulence. Directly in front of it was a tiny stationary dot. A ship.

"We'll head for it and take a look when we jump," Hawkins said. "It's probably a derelict. A lot of ships have gone into her and never been heard from again. Maybe this is one she decided to spit out at last. But whatever it is, I think we better eat first. Once we plunge into the Mist there won't be time. There won't be time for much more than breathing."

They had already made their initial jump through intraspace. Hawkins had taken Deak and Quinn into link with himself, leaving Alpha outside to handle anything that might come up. The kid was his best man but he wanted Deak and Quinn—especially Quinn—where he could watch them. Linked with his own mind and that of the ship, neither of them could do a thing he would not immediately know.

He was using the system that had worked best for him in the past. This consisted of a long initial jump of forty-five light-years, a short pause in normal space for eating and relaxing, then a second and final jump of five light-years, which put them as close to the Mist as one could get without falling straight inside. The Mist was not wide in cosmic distance. Hawkins figured it would take a month, maximum, to penetrate it all the way even at normal speeds. Not that anybody had ever come near to lasting that long in it. Hawkins held the record at twenty-nine hours, but the last four hours he had spent running for his life.

The ship carried enough food—concentrates and fluids primarily—to keep the crew fat and healthy for a year if necessary. Hawkins looked at his people and laughed inwardly for the hundredth time since the ship had left the Edge. These were the three best men he could find. Quinn was sitting propped against the wall, shaking like a tree in the wind. Deak stood near the opposite wall, muttering the way all old men mutter. And Alpha—well, Alpha looked all right. He was tall, strong and upright. He was also a liar. He had not fooled Hawkins for more than a moment. Not that the lie was necessarily a handicap. Hawkins figured this way: any man who wanted into the Mist badly enough to lie his way there deserved the opportunity. Maybe that meant Alpha was insane, but he was hardly alone. Deak insisted Hawkins was crazy and Deak was often right about a lot of things. But if he ever made it through, if he ever stood on the other side looking over his shoulder at the fiery inferno that lay behind him, the hell that had killed a hundred men like they were bugs to be squashed—then nobody would call Hawkins mad. They might think it, but they wouldn't say it.

The four of them ate hurriedly and Hawkins took Quinn and Deak into the back to link. While linked, a man ceased to be an individual consciousness, became a part of the ship, able to combine his human instincts with the mechanical computers of the ship. It took at least two men in link to operate a ship through interstellar space. Intraspace had to be entered and left at exactly the proper moment. An error of a microsecond could mean that the ship was forever lost.

This jump—only five light-years in distance—was a simple one. Linked with Deak and Quinn, Hawkins took predominance. It was his voice that Alpha heard over the communications system. It was his mind that made all the final decisions. But he used all the information fed to him by Deak and Quinn.

At the proper point they entered intraspace. At the next proper point they left it. The trip, like all good trips, was uneventful. Hawkins broke the link and rose to his feet. He headed forward and ran into Alpha coming in the opposite direction.

Alpha said, "We've got company."

Hawkins asked, "That ship we saw?"

"Yes. I called it as soon as we reentered. Somebody is on board. The call was faint. But I think it's a woman."

"Oh, Lord," said Hawkins.

IT WAS a woman. Hawkins talked to her. Her ship was crip-

pled. She was lost. Hawkins told Alpha to go fetch her.

He brought the woman on board. She had been alone on the ship except for two dead men who lay in the aft compartment. Hawkins sent the ship drifting. Some time, some day, somebody might find it and bury the men. But probably not.

The woman was about thirty years old, with narrow bones and a soft, pretty face. She said her name was Okla and that the dead men were her brothers. Both of them had been smart and brave but only one had wanted to enter the Mist. He'd talked the other into it and Okla had come with them.

"How long?" Hawkins asked.

"How long what?" she asked. Her voice was as pretty as her face.

"How long did you last?"

"About five hours."

"And your brave, bold brothers?"

"You shouldn't talk about them that way. They're dead, you know."

"And you're not. So?"

"It killed them almost right away. They said they were suffocating. I think the walls were closing in on them. At least that's what I saw. But I knew it was only an illusion. Walls don't crush you in the middle of space. I knew that."

"If you believe they can, they can. That's how it works."

She said, "You think you know a lot about it."

"I've been in there six times."

"He holds the record," Deak said. "This is Hawkins. He did twenty-nine hours one time and barely made it out."

"That's not so much," she said. "I could have done better, but not alone. That's why I jumped. Just me. I barely made it out of intraspace and blew the drive doing it. I'll make it this time if one of you can do it with me."

Alpha said, "You mean you want to go back."

"I've got a crew of professionals with me this time. How can I miss?"

Hawkins told her there were a lot of ways but she didn't believe him.

IV

SO NOW they were five. Hawkins ticked them off on his fingers: a toxer, broken and haunted; an old man, crippled and senile; a boy, untruthful and naive; and a woman who had watched two brothers die and thought them weak. That was only four. Hawkins pointed a mental finger at himself.

A madman. A fool . . .

Their ship lay in wait at the very edge of the Mist. Hawkins had closed the manual viewscreens but not before taking one quick look outside. The Mist hadn't changed; it looked as it had always

looked. Like a fire. A great fire in the void, stretching toward infinity, circling the galaxy.

Quinn was trying to talk to him. Hawkins wasn't listening but he was watching. Quinn looked bad. His hands were shaking and his eyes were like hollow pits.

Quinn was saying, "You can't take a woman in there. We haven't got the room. It's suicide."

Hawkins brushed him off. The last thing he needed now was Quinn. He said, "She just came out of there. She knows what she's doing. And her hands are steady as a rock."

Quinn went away. Hawkins turned to Alpha and said, "Take her in. And get yourself ready. Sometimes the Mist hits you first thing—sometimes it waits an hour or two. But be ready."

"What'll it be like?" Alpha said.

"You'll find out," Hawkins told him and slapped him lightly on the arm.

Alpha put them forward.

The Mist swallowed them. Sometimes when you first went in and you were young enough and foolish enough to make the mistake of looking and watching, the Mist changed itself into a great fish, opened its mouth and literally swallowed your craft. This had happened to Hawkins the first time he'd gone in. That had been the last time he had looked. This time he read the report on the transviewer, which showed the cruiser surrounded by the Mist. That was enough proof for him.

The Mist had swallowed them and they were alone. Until they returned (if they ever returned) they could not contact a soul. Radios didn't work inside the Mist, either coming or going. They were alone, the five of them and their craft, as thoroughly alone as any man can be.

They were all sitting around the main forward cabin now, simply waiting. Okla and Alpha were chatting quietly in one corner. Quinn and Deak were in another. Deak was singing and strumming a Vaella, a musical instrument from one of the outer Karnian worlds, the sound of which was a cross between a mouth harp and a classical guitar. Normally Hawkins found it lovely and gentle—now it grated on him.

Hawkins tried to ignore the noise. Quinn worried him, sitting with his head in his hands, shaking and trembling. Hawkins went over to him.

"Well?"

Quinn ignored him.

"Are you going to make it?"

Quinn took his head out of his hands. The hands continued to shake and the head twitched.

He said, "I'll make it."

Hawkins said, "Why did you come along?"

"You said you wanted me."

"I did."

"And do?"

"I said I did. I thought I needed you. I thought you could do it."

"And now that you've seen me in action you've changed your mind. Is that what you're trying to say?"

Hawkins tried to make his tone soft and caring.

"If I'd wanted to say that I would have said it."

Quinn said, "You've killed a lot of men, Hawkins."

DEAK stopped strumming the Vaella. Alpha and Okla were no longer chatting.

Hawkins said, "Go about your business. Relax while you can." He turned back to Quinn and tried again to soften his voice. "What's wrong with you? Get Deak to give you some medicine."

Quinn shook his head. "I'm not afraid of the Mist," he said. "I just don't like it."

"Nobody likes it," Hawkins said.

"It's gloating," Quinn said. "Can't you feel it? It can see right through the ship like it was glass. Right now it's looking right square at me. And laughing. Gloating."

"Get hold of yourself. That's nothing compared to what can happen. Don't you know that?"

Quinn started to laugh. The laugh kept getting higher and higher, more and more shrill, until it broke, cracked, turned into a shriek.

"Shut up," Hawkins said.

"Don't I know? Don't I know? What don't I know, Hawkins? Why do you think it's gloating? I'm its finest product. It killed me, made me dead. I didn't breathe or think or do anything. It's killed a lot of men before, but I'm the first who's ever come back so that it could view the results. That's why it's laughing. That's why it's gloating. It sees what a mess I am. Laughing at me—proud of its handiwork—and gloating."

"Deak," Hawkins said.

"Yes, sir," said Deak. He had begun to play again but softly.

"Take Quinn into quarters and give him a shot."

"The hell," Quinn said. "What are you afraid of, Hawkins? Me? Because I've got the shakes? Damned right I've got the shakes. My tox was my salvation. It's the only good thing I've had since my death and you had to go ahead and take that away from me. You don't know how to let well enough alone, do you? You had to come into my private hell and pull me out and save my life. My honor. I don't want my honor back. And my life—I gave up my life a long time ago."

Everyone was watching now.

Softly Hawkins said, "Shut up."

Quinn smiled and rose to his feet. He stood in front of Hawkins, toe to toe, shaking. Carefully he drew back his arm and

opened his fist. His hand struck across Hawkins's face. Hawkins dropped to his knees.

Hawkins wiped at his face and looked at his hand. It was clean.

He looked up at Quinn and said, "That's the second time you've hit me. Don't ever try it again."

Quinn spun around and looked at the wall. He wrapped his arms across his chest and gripped his elbows. He was trembling.

Hawkins climbed to his feet. "Deak. Take him away and give him something."

"Tox?"

"You've got some?"

"I brought a dose. Just in case."

"Then give it to him. If he wants it."

Deak led Quinn from the cabin.

Okla asked Hawkins, "Are you happy now?"

"What do you mean?"

"You pushed him into it. He was trying to fight it on his own. You had to break him."

"I was trying to make him."

"Do you really believe that?"

"Quinn wants to die. He was dead once and I think he liked it. I think he wants to go back where he was happiest. Well, out here he's got the chance. I wish him luck."

"You're a self-righteous bastard," she told him.

"Maybe so," Hawkins said. "I've never been called one before, but maybe I am." He changed the tone of his voice, putting a taste of authority back into it. "Alpha, come here. Let's check the boards."

There really wasn't anything to check. The instruments showed exactly what they ought to have showed. They were in the Mist. They had entered it approximately thirty-three minutes ago. The radio was clear but nonfunctional. The air level was safe and normal. Everything was normal. Everything was safe. And soon they would be dying.

Deak poked his head into the room and waved a hand at Hawkins.

"What do you want, Deak?"

"Quinn says he doesn't want any tox."

"That's his business. I'm not going to force it on him."

"He says he wants to go into link."

"He can't go in alone."

"He wants me to go with him."

"Why?"

"He says he feels better in link. He can't feel his body—so the shakes don't bother him."

"You better let me talk to him." Hawkins turned to the rear. "Keep an eye on the boards and call me if anything happens," he told Alpha. He gave Okla a smile and went with Deak.

THERE were four bunks in the back compartment, spaces for a maximum of four men to live during link. Quinn was lying on one of the bunks. It was not in commis-

sion. He looked worse than before. He opened his eyes when Hawkins came near.

"Do you think this trip is designed as personal therapy for you? I haven't got time to concern myself with your personal problems."

Quinn closed his eyes and laid a hand across his lids. He said, "Let's not start that over again." He raised his hands and held them up tautly. "See, Hawkins? They're steady, aren't they? Like trees on a still day? Isn't this what you wanted? Isn't this the self-control you preach?"

"So why send Deak crying to me?"

"Because I've got an idea and it doesn't have anything to do with my problems. Not much anyway. Are you willing to hear it?"

Hawkins nodded and sat on the bunk opposite the one Quinn occupied. He reached into his tunic and drew out two cigarettes. He lit them both and passed one to Quinn.

"I'm listening."

"You've said you thought this whole thing came down to a battle of wills. If a man was stronger than the Mist he'd beat it. Right?"

"I said that. And maybe it's right. I don't know. Nobody really understands the Mist."

"Nobody knows why it's here."

"That's right."

"But it's pretty much accepted that something put it here. And for some reason. Maybe not a reason that makes sense to us, but I think it's there to keep us penned in our own galaxy. And it's not invincible. If we thought it was we wouldn't be here. Except to kill ourselves. But that's not your way—or Alpha's or the girl's."

"I think it can be broken," Hawkins said.

"If you're stronger than it."

"Get to the point."

"That is the point: no one man is stronger than the Mist. But a combination of many of them—and a machine—might be. In other words, link. No other being in the known universe is as strong as a linked space cruiser."

"Linked ships have gone in before. And gotten thrown out."

"Because they were in intraspace. We know that now. You can't enter the Mist while in intraspace. It rejects you. But ships aren't usually linked while they're in normal space. I think it ought to be tried."

"I'll tell Deak to come back."

"And Alpha."

"I need Alpha out front. You can have Deak." Hawkins got to his feet and stubbed out his cigarette.

"You still think I'm trying to avoid the shakes."

Hawkins put his hand on the door. "You wanted to try it—we're trying it. Call me when you're linked."

When he got back to the for-

ward cabin he gave Deak his orders. Deak tried to protest and Hawkins hurried him along. The old man went but he was hurt. He said he felt he was being pushed out of the way. And maybe he was. Hawkins didn't have time to worry about people's injured feelings. Get all the weak ones out of the way. Sweep them into a dusty corner and tell them to sit. Let the strong ones take command. Have them run the show. That was how battles were won.

He was worried.

HE DIDN'T like the way things were going. He called Alpha and together they ran a check. Their time in the Mist was well over an hour now and nothing had happened. It made him nervous, restless. Alpha seemed the same way. The girl appeared frightened.

The ship beeped him.

Hawkins said, "What?"

The voice was Quinn's. Somewhat colder, lacking in emotion, but Quinn's. That meant he had established predominance, which was only to be expected.

The voice asked, "You want a reading on the outside conditions?"

"Give it to me."

"On our left is a fleet of ships, about fifty of them. They're firing atomic warheads at us. Just small stuff. A spider about twenty-five feet in diameter is squatting on the hull. It doesn't appear to be doing any damage. Below it are two snakes wrapped around the ship. One of them is chewing his way inside."

"Are these local phenomena—or general?"

"General, we think. Deak's component can see it. And Quinn's. The ship can't, of course."

"How does the situation feel to the Quinn component?" Hawkins was being deliberately ambiguous.

For a change I'll try tact . . .

"Quinn reports: 'The situation is horrible but I feel fine.'"

"Talk later," Hawkins said.

He turned away from the control panel and tapped his fingers against the back of his chair. Alpha seemed all right. The girl looked better. If anything, she was too calm. She worried him.

The board at his back beeped again and he turned on the audible.

The link voice said, "The snake just broke through. It's in the link chamber. It's still hungry, so watch for it. We think for certain now that it's general. We'd place its length at forty feet. It's green with light pink spots."

Hawkins told the others about the snake. Its presence irritated him. He had long ago come to the conclusion that the Mist was distinctly aware of him as an individual. He had flown into it six times before this. He held the record for longest duration. And

now here it was. Nothing but snakes and spiders. On previous trips such creatures had swallowed him whole. It would take more than this to reach him.

The girl started screaming.

Hawkins bounded out of his chair almost with relief and ran toward her. He shouted at Alpha, "Hold her—" and kept coming. Alpha made a grab for her but she knocked him out of the way. She was using her hands as claws. Alpha slid out of her way and she danced to her feet, screaming.

"Can't do it—can't breathe—not again—so close—" She lashed out with both feet as though trying to kick something. She fell over and Hawkins landed on her chest.

"Hold her arms," he told Alpha.

Hawkins started shouting at her. He had a good idea now what had happened on her first trip into the Mist. The Mist had reached her as it had reached her brothers. She had lived but she had been humiliated. She had wanted another opportunity. It hadn't worked.

"I'm going to try to talk her out of it," Hawkins said. "Keep a tight grip on her and listen to me. It might grab you at any time."

"What?" Alpha gasped, trying his best to hold the screaming girl. "What does she see?"

"The ship closing in on her, I think. If it happens to you laugh at it. Now listen—"

Hawkins' voice was calm and soft. He said, "Okla. Okla, listen to me. You are perfectly fine. You are a passenger on a space cruiser. Federation license number nine-five-six-seven-five. I am the captain of this ship. My name is Hawkins. There is nothing wrong with you. The ship is fully under the control of its crew. I am breathing the air now. It is fine. Rich. Clean. I feel fine. You feel fine."

Alpha caught on and said, "Okla, this is Alpha. There's nothing wrong with you. It's only the Mist. You've been through it before. It's the same as then. Just an illusion. Nothing can hurt you. We're almost through."

The last was a lie but a harmless one. Hawkins knew that if they failed to snap the illusion the girl would die. That simple. If she thought she was suffocating—and continued to think so for a sufficient period of time—she would suffocate.

Quinn's voice came on, deadened by the link. "Position of ship, normal. Condition of ship, excellent. Condition of crew—healthy—"

Hawkins dropped to his knees and held Okla by the neck. He put his mouth to her lips and began forcing air into her lungs.

Between breaths he told Alpha, "Get something to jab her with."

Alpha went away. Hawkins continued. Her color was returning, a good sign. He pulled away momen-

tarily and watched her chest. It was moving.

She said, "Away—" in a whisper.

Alpha said, "A giant snake just ate its way into the cabin," and handed Hawkins a needle. He took it, jabbed it into Okla's arm at the elbow. Her eyes opened and she jumped up. Hawkins hit her in the mouth. She fell again and began spitting blood.

Hawkins said, "Good," and smiled. He told Alpha, "Take her into the back and have her linked. We two can handle it out here."

Alpha carried the girl away. She was moaning and spitting.

V

BY THE time he reached the control panel Hawkins was laughing aloud. It was the first time he had laughed in the Mist.

He called the ship and it said, "We're getting full back here."

"And outside?"

"We just passed a cruiser. A real one this time, according to the ship. A derelict, we suppose. It wasn't moving."

"That's a good sign."

"What's a good sign?"

"We're getting deeper." He switched off and turned to face Alpha. It was just him and the kid now. Was he doing right? Was Alpha really the best of the lot? He had to be. He was the only one who hadn't cracked yet. The others had all failed him when he needed them the most.

Alpha said, "That wasn't too bad. I saw it, too, but I shook it off."

"It was my mistake," Hawkins said. "I should never have believed her. I should've believed my eyes. She didn't look as tough as she talked."

"What's the time now?"

"Three hours, ten minutes," said Hawkins.

"That's good."

"Better than anybody's ever done—except me. It's good."

"What got you out?"

"I went mad."

Alpha laughed. "You went twenty-nine hours. And it only takes twenty-nine days more than that."

"Nobody made you come."

"That's true—that's true." He was still laughing, so Hawkins joined him. It didn't help.

Four hours had passed. (Hawkins read the clock and nodded. Not bad—but getting worse.)

Five hours. Six.

Ten hours? (Yes, that's what it said and they were eating dinner and Alpha was telling a joke. Ten hours and telling a joke?)

Twelve hours.

Fifteen hours. (Alpha was sleeping.)

Seventeen hours. Seventeen and one-half hours.

EIGHTEEN hours had passed since they had first penetrated

the Mist and to Hawkins they were no longer inside a ship. The ship had vanished about two hours back, swallowed whole by a creature that resembled a mechanical elephant. He and Alpha were alone now, floating mistily through the void. The void? If it only were a void. It was a vast pot of boiling oil through which they floated. A river of molten lava. A sleek plain covered with blades of fiery grass. And behind them was the creature with the five heads, the hundred-and-one eyes, the gaping mouths and the snakes that rose from each of its heads, reaching and grasping.

And the noise. It was impossible to talk now; the noise was too thunderous. Was Alpha seeing it all too? Hearing it as well? Hawkins could not tell, but Alpha was clawing at his eyes. A bad sign.

Hawkins reached over and removed Alpha's hands from his eyes. He put his lips close to his ear and shouted, "Don't be afraid—the Mist—all is false." Alpha did not reply but stopped clawing at his eyes.

One corner of Hawkins's mind kept insisting: *You're still in the ship; you cannot see it, touch it, feel it—but it is there . . .*

Hawkins decided to put this to a test. Slowly and carefully he pulled himself across (the floor). He went to where the control panel ought to be, located and lifted (the phone). He spoke into it, trying not to shout, unable to hear the sound of his own voice.

"Quinn—Quinn—Quinn."

"Hawkins—where were you?"

"Right here, Quinn. Here all the time. It's bad, worse than ever. You always forget how bad."

"It's bad here, too—but together—"

"Alpha is here."

"Yes, but we're the ones making it. That's the point. This is the way. The three of us, leaning on one another. Quinn and Deak and Okla. And the ship, too. We use the ship's eyes. No illusions, flying straight like an arrow."

Hawkins spoke slowly: "Automatic flights can't make it."

"But we're only partly automatic. And mostly human."

Hawkins was screaming suddenly and he dropped (the phone). The linked voice said, "Hawkins? For God's sake—"

Hawkins crawled through the Mist and grabbed Alpha by the throat. Something was hurting him—tiny little things like an army of ants. They were eating, chewing their way toward the light. Alpha had caused it. Hawkins squeezed harder, squeezed Alpha's throat.

Alpha clawed at Hawkins' eyes and the two of them rolled across (the floor).

And fell through it.

Down. Straight down, turning, twisting, whirling in the airless void.

Alpha was screaming, "The Mist—the Mist."

Hawkins wouldn't let go. Alpha was younger, stronger, tougher. But Hawkins had Right on his side. And those things like ants. They were still inside him, still chewing, and together they fell.

They went through clouds of smoke and flame and fell against monsters and creatures, snakes and spiders, and combinations of both, and more and more and worse and worse, rolling, tumbling and falling together.

They struck.

Hawkins released his grip, jumped to his feet, and ran. He was on a wooden platform. He paused at the edge and looked back at Alpha. Below was fire and above was fire and inside were the things. Chewing.

He turned to jump.

And something big hit him in the back.

He closed his eyes and began to die.

HAWKINS awoke and the discovery that he wasn't dead came as a surprise to him.

A voice said, "Welcome back, Mr. Hawkins." It seemed to come from somewhere inside him.

Hawkins opened his eyes but saw nothing.

The voice said, "You don't have visual."

Hawkins tried to speak. "Deak," he wanted to say, but couldn't.

Deak said, "I'm predominant. Don't talk; just think."

"We're linked?"

"Hello, Hawkins," said Okla's voice. "I guess we weren't as strong as we thought."

He was beginning to remember now. He asked, "Alpha?"

"Up front," Deak said.

"I thought I'd killed him."

"He thought the same about you."

"How many hours did we make it?"

"Forty-two."

"I must've been out a long time. The last I remember was eighteen."

"We kept you out on purpose. Wanted to make sure you got all the way back."

"Where's Quinn?"

"In front, acting as captain."

"Give me predominance. I want to talk to him."

Deak said, "Yes, sir."

There was a mental shift and Hawkins took over. He was feeling better now, back in a spot to which he was long accustomed. He beeped the forward cabin and got Quinn.

"Hawkins is predominant and awake," he said, using the linked voice.

"We broke your record."

"Hawkins is still captain-of-record. He gets all the credit. How's Alpha?"

"He's fine. I had him in link for

a while and he pulled out of it."

"And you? Hawkins thought you were finished."

"Somebody had to take over out here and I thought I was the best candidate. I've found out one thing—after you've died once the second time is not so bad. Or the third."

"Where are we now? How far from the Edge?"

"We're in the Mist."

"What? Hawkins is coming out there."

"Tell him to stay where he is. He's needed. We're about to jump."

"For home?"

"For the other side. We can't last a month in normal space and it's quiet out there. Take a look. Nothing but the Mist, no monsters, space fleets or atomic bombs. I think we can make it."

The linked voice said, "Good luck—" and switched off.

THEY made the jump an hour later. Hawkins let Deak regain predominance. He was tired. He watched but took no active role. They entered intraspace, proceeded through it and came out on the other side.

He left the link, got to his feet and went forward. Quinn and Alpha were waiting. Quinn looked like hell. His whole body was shaking, his eyes were red as dwarf suns, his tongue was fat and swollen.

"We made it," he said.

Hawkins allowed himself a smile. Deak and Okla had entered the cabin and the five of them crowded around the control panel. They looked at the viewscreen, expanded to show an area fifteen light-years in diameter. First they looked at the dot which represented their ship, then they looked toward the Edge. Between the Edge and the ship lay the Mist.

"Now what?" Deak asked. "You do something like this and there's nothing left except to go back and do it again the other way."

"Now we wait for them to come for us," said Hawkins.

"Who's them?" Okla asked.

"Whoever put that thing up. They'll be here. We wait."

Quinn looked sour. He turned to Deak. "If there's more waiting to be done I'm going to need help before I fall over."

"Medicine's in the back," Deak said, and the two of them went away.

THE alien craft appeared on the viewscreen one hour later. It was enormous, at least twice the size of any human ship. A tentative radio contact was exchanged —the multiplication tables.

The next message arrived simultaneously in the minds of all five humans. *You have succeeded in passing the first of your tests. Our race extends to your race its con-*

gratulations on your first step toward true maturity as a people. Your second test has been devised and now awaits your efforts.

The alien ship was gone from the screen.

The Mist was no longer behind them. It, too, was gone. But something new had appeared on the screen, larger than the Mist and more solid in appearance, like a great wall that stretched outward toward infinity. The Wall lay directly in front of their craft.

Hawkins said, "The bastards," and ordered his crew to prepare for the journey home.

THE EDGE

DEAK sat alone in the plushly lined office and played with the dials of an intraspace phone. He enjoyed being alone with his memories of the days when he'd been out there, hunting and seeking for whatever it was that man always sought.

The time he, Hawkins and the rest had come back from the Mist was easy for him to remember. It had been exactly one year ago. Nyby had arrested the lot of them, too stupid to understand that they had done what no other man had ever done, that they were heroes.

They had never gone to jail, of course. They had been heroes for a while and then everybody forgot and they were just people again. But the memories were still there, clear and warm and fine.

But things were okay now, too, Deak decided. He liked this soft life, enjoyed his plush office and simple job.

He took the phone and dialed a number. There was a pause, then he said, "This is the Governor. What I want is—"

ALPHA touched the girl's hand and said, "This place never changes. It's been a year and it's the same."

"Some things never change."

Quinn stood at the bar, drinking with a group of green-skinned aliens. Alpha and Okla went over to join him.

Okla said, "I'm happy now, happier than I've ever been. Isn't that all that matters? I know it wasn't my doing, that I should never even have been there, but I was there and it made me feel good."

Alpha said, "It did that for all of us—and all of us should never have been there."

"Except Hawkins," said Quinn.

BEYOND THE EDGE AND THE MIST

Hawkins was outside, beyond the Edge and beyond the Mist. He was searching, seeking, hunting. He was hunting for life.

Hawkins faced the Wall. ★



THEODORE STURGEON

To find black, search white. To find heaven, search hell . . .

I

I WORK for a stockbroker on the twenty-first floor. Things have not been good for stockbrokers recently, what with tight money and hysterical reaction to the news and all that. When business gets really bad for a brokerage it often doesn't fail—it merges. This has something to do with the public image. The company I work for is going through the agony. For the lower echelons—me—that means detail you wouldn't believe, with a reduced staff. In other words, night work. Last night I worked without looking up until my whole body was the shape of the chair and there was a blue haze around the edges of everything I could see. I finished a stack and peered at the row of stacks still to be done and tried to get up. It took three tries before my hips and knees would straighten enough to let me totter into the hall and down to the men's room. It never occurred to me to close the office door and I guess the confusion, all the strange faces coming and going for the past few days, extended to the security man downstairs. However it happened, there was a dazed man in my office when I came back a moment later.

He was well dressed—I guess that, too, helped him pass the guards—in a brown sharkskin suit with funny lapels, what you might call up-to-the-minute camp. He wore an orange knitted tie the like of which you only see in a new boutique or an old movie. I'd say he was in his twenties—not yet twenty-five. And dazed.

When I walked in and stopped dead he gave me a lost look and said, "This is my office."

I said the only thing I could think of. "Oh?"

He pivoted slowly all the way

around, looking at the desk, the shelves, the files.

When he came around to face me again he said, "This isn't my office."

He had to be with the big five-name brokerage house that was gobbling up my company in its time of need. I asked him.

"No," he said, "I work for *Fortune*."

"Look," I said, "you're not only in the wrong office, you're in the wrong building. Time-Life is on Sixth Avenue—been there since nineteen fifty-two."

"Fifty-*two*—" He looked around the room again. "But I—but it's—"

He sat down on the settle. I had the idea he'd have collapsed on the floor if the settle hadn't been there. He asked me what day it was. I think I misunderstood.

"Thursday," I said. I looked at my watch. "Well, it's now Friday."

"I mean, what's the date?"

I pointed to the desk calendar right beside him. He looked at it twice, each one a long careful look. I never saw a man turn the color he turned. He covered his eyes. Even his lips went white.

"Oh my God."

"You all right?" I asked—a very stupid question.

"Tell me something," he said after a while. "Has there been a war?"

"You have to be kidding."

He took his hand down and looked at me, so lost, so frightened. Not frightened. There has to be a word. Anguished. He needed answers—needed them. Not questions, not now.

I said, "It's been going on a long time."

"A lot of young guys killed?"

"Upwards of fifty thousand." Something made me add: "Americans. The other side, five, six times that."

"Oh, my God," he said again. Then: "It's my fault."

Now I have to tell you up front that it never occured to me for one second that this guy was on any kind of a drug trip. Not that I'm an expert, but there are times when you just know. Whatever was bothering him was genuine—at least genuine to him. Besides, there was something about him I had to like. Not the clothes, not the face, just the guy, the kind of guy he was.

I SAID, "Hey, you look like hell and I'm sick and tired of what I'm doing. Let's take a break and go to the Automat for coffee."

He gave me that lost look again. "Is the lid off on sex? I mean, young kids—"

"Like rabbits," I said. "Also your friendly neighborhood movie—I don't know what they're going to do for an encore." I had to ask him, "Where've you been?"

He shook his head and said candidly, "I don't know where it was. Are people leaving their jobs—and

school—going off to live on the land?"

"Some," I said. "Come on."

I switched off the overhead light, leaving my desk lamp lit. He got to his feet as if he were wired to the switch, but then just stood looking at the calendar.

"Are there bombings?"

"Three yesterday, in Newark. Come on."

"Oh, my God," he said and came. I locked the door and we went down the corridor to the elevators. Air wheezed in the shaft as the elevator rose. "It always whistles like that late at night," he said. I had never noticed that but knew he was right as soon as he said it. He also said weakly, "You don't feel like walking down?"

"Twenty-one flights?"

The doors slid open. The guy didn't want to get in. But I mean, he *really* didn't. I stood on the crack while he screwed up his courage. It didn't take long but I could see it was a mighty battle. He won it and came in, turned around and leaned against the back wall. I pushed the button and we started down. He looked pretty bad. I said something to him but he put up a hand, waved my words away before they were out. He didn't move again until the doors opened and then he looked into the lobby as if he didn't know what to expect. But it was just the lobby, with the oval information desk we called the fishbowl and the shiny floor and the portable wooden desk, like a lectern, where you signed in and out after hours and where the guard was supposed to be. We breezed by it and out into Rockefeller Center. He took a deep breath and immediately coughed.

"What's that smell?"

I'd been about to say something trivial about the one good thing about working late—you could breathe the air, but I didn't say it.

"The smog, I guess."

"Smog. Oh yes, smoke and fog. I remember." Then he seemed to remember something else, something that brought his predicament, whatever it was, back with a hammer blow. "Well of course," he said as if to himself. "Has to be."

On Sixth Avenue (New Yorkers still won't call it Avenue of the Americas) we passed two laughing couples. One of the girls was wearing a see-through top made of plastic chainmail. The other had on a very maxi coat swinging open over a hotpants. My companion was appreciative but not astonished. I think what he said was, "That, too—" nodding his head. He watched every automobile that passed and his eyes flicked over the places where they used to sell books and back-date periodicals, every single one of them now given over to peepshows and beaver magazines. He had the same nod of his head for this.

We reached the Automat and it

occurred to me that an uncharacteristic touch of genius had made me suggest it. I had first seen the Automat when I had ridden in on my mother's hip more years ago than I'll mention—and many times since—and very little has changed—except, of course, the numbers on the little off-white cards that tell you how many nickels you have to put in the slot to claim your food. After a few years' absence one tends to yelp at the sight of them. I always do and the strange young man with me did, too. Aside from that, there is a timeless quality about the place, especially in the small hours of the morning. The overage, overpainted woman furtively eating catsup is there as she, or someone just like her, has been for fifty years; and the young couple, homely to you but beautiful to each other, full of sleepiness and discovery; and the working stiff in the case-hardened slideway of his life, grabbing a bite on the way from bed to work and not yet awake—no need to be—and his counterpart headed in the other direction; no need for him to be awake either. And all around: the same marble change counter with the deep worn pits in it from countless millions of coins dropped and scooped; behind it the same weary automaton; and around you the same nickel (not chrome) framing for the hundreds of little glass-fronted doors through which the food always looks so much better than it is. All in all, it's a fine place for the reorientation of time-travelers.

"Are you a time-traveler?" I asked, following my own whimsy and hoping to make him smile.

He didn't smile. "No," he said. "Yes, I—well—" flickering panic showed in his eyes—"I don't really know."

We bought our coffee straight out of the lion's mouth and carried it to a corner table. I think that when we were settled there he really looked at me for the first time.

He said, "You've been very kind."

"Well," I said, "I was glad of the break."

"Look, I'm going to tell you what happened. I guess I don't expect you to believe me. I wouldn't in your place."

"Try me," I offered. "And anyway—what difference does it make whether I believe you?"

" 'Belief or nonbelief has no power over objective truth.' " I could tell by his voice he was quoting somebody. The smile I had been looking for almost came and he said, "You're right. I'll tell you what happened because—well, because I want to. Have to."

I said fine and told him to shoot. He shot.

I WORK in Circulation Promotion [he began]. Or maybe I

should say I *worked*—I guess I should. You'll have to pardon me, I'm a little confused. There's so much—

Maybe I should start over. It didn't begin in Rockefeller Center. It started, oh, I don't know how long ago, with me wondering about things. Not that I'm anything special—I'm not saying I am—but it seems nobody else wonders about the same things I do. I mean, people are so close to what happens that they don't seem to know what's going on.

Wait, I don't want to confuse you, too. One of us is enough. Let me give you an example.

World War II was starting up when I was a kid and one day a bunch of us sat around, trying to figure out who would be fighting who. Us and the British and French on one side, sure—the Germans and Austrians and Italians on the other—that was clear enough. And the Japanese. But beyond that?

It's all history and hindsight now and there's no special reason to think about it, but at the time it was totally impossible for anyone to predict the lineup that actually came about. Go back in the files of newspaper editorials—*Harper's* or *Reader's Digest* or any other—and you'll see what I mean. Nobody predicted that up to the very end of the war our best and strongest friend would be at peace with our worst and deadliest enemy. I mean, if you put it on personal terms—if you and I are friends and there's somebody out to kill me and I find out that you and he are buddies—could we even so much as speak to each other again? Yet here was the Soviet Union, fighting shoulder to shoulder with us against the Nazis, while for nearly five years they were at peace with Japan!

And about Japan: there were hundreds of thousands of Chinese who had been fighting a life-and-death war against the Japanese for ten years—ten years, man!—and along with them, Koreans. So we spent billions getting ourselves together to mount air strikes against Japan from thousands of miles away—New Guinea, the Solomons, Saipan, Tinian. Do you know how far it is from the Chinese mainland to Tokyo, across the Sea of Japan? Six hundred miles. Do you know how far it is from Pusan, Korea to Hiroshima? A hundred and thirty!

I'm sorry. I get excited like that to this day when I think of it. But damn it—why didn't we negotiate to move in and set up airstrips on the mainland and Korea? Do you think the natives would have turned us down? Or is it that we just don't like chop suey? Oh, sure—there are a lot of arguments like backing up Chiang against the Communists and I even read somewhere that it was not our policy to interfere in Southeast Asia. (Did I

say something funny?) But you know Chiang and the Communists had a truce—and kept it too—to fight the common enemy.

Well—all right. All that seems a long way from what happened to me, I suppose, but it's the kind of thing I've spent my life wondering about. It's not just wars that bring out the thing I'm talking about, though God knows they make it plainer to see. Italy and Germany sharpening their newest weapons and strategies in the Spanish civil war, for example, or Mussolini's invasion of Ethiopia—hell, the more sophisticated people got the less they could see what was in front of them. Any kid in a kindergarten knows a bully when he sees one and has sense enough at least to be afraid. Any sixth-grader knows how to organize a pressure group against a bad guy. Wars, you see, are really life-and-death situations, where what's possible, practical—logical—has a right to emerge. When it doesn't—you have to wonder. French peasants taxed till they bled to build the Maginot Line all through the thirties, carefully preparing against the kind of war they fought in nineteen fourteen.

But let's look some place else. Gonorrhea could be absolutely stamped out in six months, syphilis maybe in a year. I picked up a pamphlet last month—hey, I have to watch that "last month," "nowadays," things like that—anyway, the pamphlet drew a correlation between smoking cigarettes and a rising curve of lung cancer, said scientific tests prove that something in cigarettes can cause cancer in mice. Now I bet if the government came out with an official statement about that, people would read it and get scared—and go on smoking cigarettes. You're smiling again. That's funny?

"IT ISN'T funny," I told the dazed man. "Here—let me bring some more coffee."

"On me this time," He spilled coins on the table. "But you were smiling, all the same."

"It wasn't that kind of a smile, like for a funny," I told him. "The Surgeon General came out with a report years ago. Cigarette advertising is finally banned from TV, but how much difference does it make? Look around you."

While he was looking around him I was looking at his coins. Silver quarters. Silver dimes. Nickels: 1948, 1950, 1945. I began to feel very strange about this dude. Correction: my feel-strange went up another notch.

He said, "A lot of the people who aren't smoking are coughing, too."

We sat there together, looking around. Again he had shown me something I had always seen, never known. How many people cough.

I went for more coffee.

II

HE WENT on:
Every four weeks I get—got?—got a makeready. A makeready is a copy of a magazine with all the proofing done and the type set, your last look before the presses roll. I have to admit it gives me—used to give me—a sense of importance to get it free (it's an expensive magazine) even before the "men high in government, industry, commerce and the professions" (as it says in the circulation promotion letters I write) had a chance to read it and move and shake, for they are the movers and shakers.

Anyway, there's this article in the new—not current; *really* new—issue called *The Silent Generation*. It's all about this year's graduating class, the young men who in June would go into the world and begin to fit their hands to the reins. This is nineteen-fifty I'm talking about, you understand, in the spring. And it was frightening. I mean, it spooked me while I read it and it spooked me more and more as I thought about it—the stupidity of it, the unbelievable blindness of people—not necessarily people as a whole, but these people in the article—*The Class of 1950*—young and bright and informed. They had their formal education behind them and you assumed it was fresh in their minds—not only what they had learned, but the other thing college is really for: learning how to learn.

And yet what do you suppose they were concerned about? What was it they talked about until three o'clock in the morning? What kind of plans were they making for themselves—and for all the rest of us (for they were going to be the ones who run things)? Democracy? Ultimate purpose? The relationship of man to his planet—or of modern man to history? Hell, no.

According to this article, they worried about fringe benefits. Retirement income, for God's sake! Speed of promotion in specialized versus diversified industry! Did they spend their last few collegiate weeks in sharpening their new tools or in beering it up—or even in one last panty raid? Uh-uh. They spent them moving from office to office of the campus recruiters for big electronic and chemical and finance companies, working out the deal that would get them the steadiest, surest income and the biggest scam on the side and the softest place to lie down at the end of it.

The Silent Generation, the guy who wrote the article called them. He himself graduated in the late 'thirties and he had a lot to say about *his* generation. There was a lot wrong about them and they did some pretty crazy things. They argued a lot with each other and with

their elders and betters and they joined things like the Young Socialist League—not so much because they were really lefties, but because those groups seemed the only ones around that gave a damn about the state the world was in. Most of all, you knew they were there. They were a noisy generation. They had that mixture of curiosity and rebellion that let you know they were alive.

The writer looked at the Class of '50 with a kind of despair—and something like terror, too. Because if they came to run things, experience wouldn't merely modify them and steady them. It would harden them like an old man's arteries. It would mean more-of-the-same until they'd be living in a completely unreal world of their own with no real way of communicating with the rest of us. Growing and changing and trying new ways would only frighten them. They'd have the power, and what they'd use it for would be to suppress growth and change, not knowing that societies need growth and change to live, just like trees or babies or art or science. So all he could see ahead was a solid, silent, prosperous standstill—and then some sudden and total collapse, like a tree gone to dry rot.

Well I don't know what you think of all this—or if you understand how hard it hit me. But I've tried to explain to you how all my life I've been plagued by these—well, I call them wonderments—how, when something makes no sense, it kind of hurts. When I was a toddler I couldn't sleep for wanting someone to tell me why a wet towel is darker than a dry one when water has no color. In grade school nobody could tell me why the sound of a falling bomb gets lower and lower in pitch as it approaches the ground, when by all the laws of physics it ought to rise. And in high school I wouldn't buy the idea about a limitation on the velocity of light. (And I still don't.) About things like these I've never lost faith that somebody, some day, would come up with an answer that would satisfy me—and sure enough, from time to time somebody does. But when I was old enough to wonder why smart people do dumb things that kind of faith could only last so long. And I began to feel that there was some other factor, or force, at work.

Do you remember *Gulliver's Travels?* When he was in Lilliput there was a war between the Lilliputians and another nation of little people—I forget what they called themselves—and Gulliver intervened and ended the war. Anyway, he researched the two countries and found they had once been one. And he tried to find out what caused so many years of bitter enmity between them after they split. He found that there had been two factions in that original kingdom—the Big Endians and

the Little Endians. And do you know where that started? Far back in their history, at breakfast one morning, one of the king's courtiers opened his boiled egg at the big end and another told him that was wrong, it should be opened at the small end! The point Dean Swift was making is that from such insignificant causes grow conflicts that can last centuries and kill thousands. Well, he was near the thing that's plagued me all my life, but he was content to say it happened that way. What blowtorches me is—*why*. *Why* are human beings capable of hating each other over such trifles? Why, when an ancient triviality is proved to be the cause of trouble, don't people just stop fighting?

But I'm off on wars again—I guess because when you're talking about stupidity, wars give you too many good examples. So tell me—why, when someone's sure to die of an incurable disease and needs something for pain—why don't they give him heroin instead of morphine? Is it because heroin's habit-forming? What difference could that possibly make? And besides, morphine is, too. I'll tell you why—it's because heroin makes you feel wonderful and morphine makes you feel numb and gray. In other words, heroin's fun (mind you, I'm talking about terminal cases, dying in agony, not normally healthy people) and morphine is not—and if it's fun, there must be something evil or wrong about it. A dying man is not supposed to be made to feel good. And laws that keep venereal disease from being recognized and treated; and laws against abortion; and all the obscenity statutes—right down at the root these are all anti-pleasure laws. Would you like the job of explaining that to a man from Mars, who hadn't been brought up with them? He couldn't follow reasoning like that any more than he could understand why we have never designed a heat engine—which is essentially what an internal combustion engine is—that can run without a cooling system—a system designed to dissipate heat!

And lots more.

So maybe you see what happened to me when I read the article about the Class of 'fifty. The article peaked a tall pyramid inside me, brought everything to a sharp point.

"HAVE you a pencil?" said the young man. All this time and he hadn't yet lost the dazed look. I guess it was hard to blame him. "Pens are no good on paper napkins," he said.

I handed him my felt-tip. "Try this."

He tried it. "Hey, this is great. This is really keen." A felt-tip does fine on paper napkins. He studied it as if he had never seen such a

thing before. "Really keen," he said again. Then he drew this:



"Yingyang," I said. "Right?"

He nodded. "One of the oldest symbols on Earth. Then you know what it means."

"Well, some anyway. All opposites—life and death, light and dark, male and female, heavy and light—anything that has an opposite."

"That's it," he said. "Well, let me show you something." Using another napkin, folded in two, as a straightedge, he lay it across the symbol.

"You see, if you were to travel in a straight line across a diameter—any diameter—you'd have to go on both black and white somewhere along the way. You can't go all the way on just one color without bending the line or going a short way, less than the diameter.

"Now let's say this circle is the board on which the game of human affairs is played. The straight line can be any human course—a life, a marriage, a philosophy, a business. The optimum course is a full diameter, and that's what most people naturally strive for; a few might travel short chords or bent ones—sick ones. Most people can and do travel the diameter. For each person, life, marriage, whatever, there's a different starting point and a different arrival point, but if they travel the one straight line that goes through the center, they will travel black country exactly as much as white, ying as much as yang. The balance is perfect, no matter where you start or which way you go. Got it?"

"I see what you mean," I said. "Your coffee's cold."

"So's yours. Now look: suppose some force came along and shifted one of these colors away from the center point, like this—" And he drew again.



We studied his drawing. He drew well and quickly.

He said, "You see, if the shift were gradual, then from the very second it began there would be some people—some lives, philosophies—who would no longer have that perfect balance between black and white, between ying and yang. Nothing wrong with the course they traveled—they still aim for the very center and pass on through.

"And if the shift continued to where I've drawn it, you can see that some people might travel all the way on the white only.

"And *that's* what has happened to us. *That's* the answer to what seems to be human stupidity.

There's nothing wrong with people! Far and away most of them want to travel that one straight line, and they do. It isn't their fault that the rules have been changed and that the only way to the old balance for anyone is to travel a course that is sick or twisted or short.

"The coffee *is* cold. Oh, God, I've been running off at the mouth. You'll want to get back to the office."

"No, I won't," I said. "The hell with it. You go on." For somewhere along the line he had filled me with a deep, strange excitement. The things that he said had plagued him all his life—or things like them—had plagued me, too. How often had I stood in a voting booth, trying to decide between Tweedle-Dee and Tweedle-Dum, the Big Endians versus the Little Endians? Why can't you tell someone, "Honesty is the best policy—" or "do as you would be done by—" and straighten his whole life out, even when it might make the difference between life and death? Why do people go on smoking cigarettes? Why is a woman's breast—which for thousands of artists has been a source of beauty and for millions of children the source of life—regarded as obscene? Why do we manipulate to increase the cost of this road or that school so we can "bring in Federal money" as if the Federal money weren't coming from our own pockets? And since most people try to be decent and honest and kind—why do they do the stupid things they do?

What in the name of God put us into Viet Nam? What are ghettoes all about? Why can't the honest sincere liberals just shut up and quietly move into the ghettoes any time they can guarantee that someone from the ghetto can take their place in the old neighborhood—and keep right on doing it until there are no more ghettoes? Why can't they establish a country called Suez out of territory on both sides of the canal—and populate it from Israel and all the Arab countries and all the refugees and finance it with canal tolls and put in atomic power plants to de-salt seawater and make the desert bloom, and forbid weapons and this-or-that "quarters" and hatred? In other words, why are simple solutions always impossible? Why is any solution that does not involve killing people unacceptable? What makes us undercopulate and overbreed when the perfect balance is available to everybody?

And at this weary time of a quiet morning in the Automat, I was pinioned by the slender bright shard of hope that my dazed friend had answers.

Go back to the office? Really, the hell with it.

"You go ahead," I said, and he did.

III

WELL, okay [he went on], I read that article about the class of '50—the Silent Generation—and I began to get mad-scared, and it grew and grew until I felt I had to do something about it. If the class of '50 ever got to run things, they'd have the money, they'd have the power. In a very real sense they'd have the guns. It would be the beginning of a long period—maybe forever—of more-of-the-sameness. There didn't seem any way to stop it.

Now I'd worked out this yingyang theory when I was a college sophomore, because it was the only theory that would fit all the facts. Given that some force had shifted the center, good people, traveling straight the way they should, had to do bad things because they could never, never achieve that balance. There was only one thing I didn't know.

What force had moved the center?

I sat in the office, dithering and ignoring my work, and tried to put myself together. *Courage, mon camarade, le diable est mort,* is what I said to myself. That mean anything to you?

No?

Okay—when I was a kid I read a book called *The Cloister and the Hearth,* by Charles Reade. It was about a kid raised in a monastery who went into the world—an eighteenth-century kind of world, or earlier, I forget now. Anyway, one of the people he meets is a crazy Frenchman, always kicking up his heels and cheering people up and at the worst of times that's what he'd say: *Courage, buddy—the devil is dead.* It stuck with me and I used to say it when everything fell apart and there seemed nowhere to turn and nothing to grab hold of. I said it now, and you know, it was like a flash bulb going off between my ears.

Mind you, it was real things I was fretting about, not myths or fantasies or religious principles. It was overpopulation and laws against fun and the Dust Bowl (remember that? Well, look it up some time) and nowhere to put the garbage, and greed and killing and cruelty and apathy.

I took a pad of paper and drew these same diagrams and sat looking at them. I was very excited, I felt I was very near an answer.

Ying and Yang. Good and evil—sure—but nobody who understands it would ever assign good to one color and bad to the other. The whole point is, they both have to be there and in perfect balance. Light and dark, male and female, closed and open, life and death, that-which-is-outgoing and that-which-comes-together—all of it, everything—opposition, balance.

Well now, for a long time the devil has had a bad name. Say a

bad press. And why not? Just for the sake of argument, say it is the yang country he used to rule and that is the one that was forced aside. Anyone living and thinking in a straight line could spend his whole life and career and all his thinking in ying country. He'd have to know that yang was there, but he'd never encounter it, never experience it. More than likely he'd be afraid of it because that's what ignorance does to people, even good people.

And the ones who did have some experience of yang, the devil's country, would find much more of the other as they went along, because the balance would be gone. And the more the shift went on, the more innocent, well-meaning, thoughtful people ran the course of their lives and thoughts, the worse they would think of the devil's country and the worse they would talk about it and him. It would get so you couldn't trust the books; they'd all been written from the one point of view, the majority side of imbalance. It would begin to look as if the yang part of the universe were a blot which had to be stamped out to make a nice clean all-ying universe—and you have your John Knox types and your Cotton Mathers: just good people traveling straight and strong and acting from evidence that was all wrong by reason that couldn't be rational.

And I thought, *That's it!*

The devil is dead!

I have to do something about it.

But what?

Tell somebody, that's what. Tell everybody, but let's be practical. There must be somebody, somewhere, who knows what to do about it—or at least how to explain about the yingyang and how it's gone wrong, so that everybody could rethink what we've done, what we've been.

Then I remembered the *Saturday Review*. The *Saturday Review* has a personals column in it that's read by all sorts of people—judging by the messages. But I mean *all* kinds of people. If I could write the right ad, word it just the right way . . .

I felt like a damn fool, Year of Our Lord 1950, turning all my skills as a professional copywriter to telling the world that the devil was dead, but it was an obsession, you see, and I had to do something, even something insane. I had to start somewhere.

So I wrote the ad.

> **THE TROUBLE IS** the light-bearer's torch is out and we're all on the same end of the seesaw. Help or we'll die of it. Whoever knows the answer call DU6-1212 Extension 2103.

I'm not going to tell you how many drafts I wrote or all the reasons why, copywise, that was best, mixed metaphors and all. I knew

that whoever could help would know what I was asking.

NOW comes the hard part. For you, I mean, not me. Me, I did what I had to. You're going to have to believe it.

Well, maybe you don't have to. Just—well, just suspend disbelief until you hear me out, okay?

All right. I wrote up the copy and addressed an envelope. I put on a stamp and a special delivery. I put in the copy and a check. I sealed it and crossed the hall—you know where the mail chute is—right across from my door. Your door. It was late by then, everyone had gone home and my footsteps echoed and I could hear that funny whistle under the elevator doors. I slid the envelope into the slot and let go, and my phone rang.

I'd never heard it ring quite like that before. I can say that, yet I can't tell you how it was different.

I sprinted into the office and sat down and picked up the phone. I'm glad I sat down first.

There was this Voice . . .

I have a hell of an ear, you know that? I've thought a lot about that Voice and recalled it to myself and I can tell you what it was made of—a tone, its octave and the fifth harmonic. I mean if you can imagine a voice made of three notes, two an octave apart and the third reinforcing, but not really three notes at all, because they sounded absolutely together like one. Then, they weren't pure notes, but voice-tones, with all the overtones that means. And none of that tells you anything either, any more than if I described the physical characteristics of a vibrating string and the sound it produced—when the string happened to be on a cello played by Pablo Casals. You know how it is in a room full of people when you suddenly become aware of a single voice that commands attention because of what it is, not what it says. When a. voice like that has, in addition, something to say—well, you listen.

I listened. The first thing I heard—I didn't even have a chance to say hello—was: "You're right. You're absolutely right."

I said, "Who is this?" and the Voice sighed a little and waited.

Then it said, "Let's not go into that. It would be best if you figured it out by yourself."

As things turned out, that was a hundred percent on target. I think if the Voice hadn't taken that tack I'd have hung up, or anyway wasted a lot of time in being convinced.

The Voice said, "What matters is your ad in the *Saturday Review.*"

"I just mailed it!"

"I just read it," the Voice said, then explained: "Time isn't quite the same here." At least I think that's what it said. It said, "How far are you willing to go to make everything right again?"

I didn't know what to say. I remember holding the phone away from my face and looking at it as if it could tell me something. Then I listened again. The Voice told me everything I was going through, carefully, not bored exactly but the way you explain to a child that you know what's bothering him.

The Voice said, "You know who I am but you won't think the words. You don't want to believe any part of this but you have to and you know you will. You're so pleased with yourself for being right that you cannot think straight—which is only one of the reasons you can't think straight. Now pull yourself together and answer my question."

I couldn't remember the question, so I had to be asked once more—how far was I willing to go to make everything right again?

You have to understand that this Voice meant what it said. If you'd heard it, you'd have believed it—anybody would. I know I was being asked to make a commitment and that was pretty scary, but over and above that I knew I was being told that everything could be made right again—that the crazy tilt that had been plaguing mankind for hundreds, maybe thousands of years could be fixed. And I might be the guy to do it—me, for God's sake.

If I had any doubts, any this-can't-be kind of feelings—they disappeared. How far would I go?

I said, "All the way."

The Voice said, "Good. If this works you can take the credit. If it doesn't you take the blame—and you'll have to live with the idea that you might have done it and you failed. I won't be able to help you with that."

I said, anyway I'd know I'd tried.

The Voice said, "Even if you succeed you may not like what has to be done."

I said, "Suppose I don't do it—what will happen?"

The Voice said, "You ever read *1984*?"

I said I had.

The Voice said, "Like that, only more so and sooner. There isn't any other way it can go now."

That's what I'd been thinking—that's what had upset me when I read the article.

"I'll do it," is all I said.

The Voice said that was fine.

It said "I'm going to send you to see somebody. You have to persuade him. He won't talk to me and he's the only one who can do anything."

I began to have cold feet. "But who is he? Where? What do I say?"

"You know what to say. Or I wouldn't be talking to you."

I asked, "What do I have to do?"

And all I was told was to take the elevator. Then the line went dead.

SO I turned out the lights and went to the door—and then I remembered and went back for my drawings of the yingyang, one as it ought to be and the other showing it out of balance. I held them like you'd hold an airline ticket on a first flight. I went to the elevators.

How am I going to make you believe this?

Well, you're right—it doesn't matter if you do or not. Okay, here's what happened.

I pushed the call button and the door opened instantly, the way it does once in a while. I stepped into the elevator and turned around—and there I was.

The door hadn't closed, the car hadn't moved. It all happened when I was turning around. The door was open, but not in the hallway on the twenty-first floor. The scene was gray. Hard gray outdoor ground and gray mist. I stood a while looking out and my heart was thumping like someone was pounding me on the back with fists. But nothing happened, so I stepped out.

I was scared.

Nothing happened. The gray fog was neither still nor blowing. Sometimes there seemed to be shapes out there somewhere—trees, rocks, buildings—but then there was nothing and maybe it was all a vast plain. It had an outdoors feel to it—that's all I can say for sure.

The elevator door was solidly behind me, which was reassuring. I took one step away from it—a little one, I'll have you know—and called out. It took three tries before my voice would work.

"Lucifer!"

A voice answered me. Somehow it wasn't as—well, as grand as the one I'd heard over the phone, but in other ways it was bigger.

It said, "Who is that? What do you want?"

It was cranky. It was the voice of someone interrupted, someone who felt damn capable of handling the interruption, too. And this time there really was something looming closer through the fog.

I clapped my hands over my face. I felt my knees hit the gray dirt. I didn't kneel down, you understand. The knees just buckled as if they didn't belong to me any more. But hell, the wings. Bat's wings, leathery, and a tail with a point on it like a big arrowhead. That face, eyes. And thirty feet tall, man!

He touched my shoulder and I would have screamed like a schoolgirl if I'd had the breath for it.

"Come on now." It was a different voice altogether—he'd changed it—but it was his all the same. He said, "I don't look like that. That came out of your head. Here—look at me."

I looked. I guess it was funny, me kind of peeping up quickly so in case it was more than I could

take I could hide my face again—as if that would do any good. But I'd had more than I could handle.

What I saw was a middle-aged guy in a buff corduroy jacket and brown slacks. He had graying hair and a smooth suntanned forehead and the brightest blue eyes I have ever seen. He helped me to my feet.

He said, "I don't look like this either, but—" he shrugged and smiled.

I said, "Well, thanks anyway—" and felt stupid. I looked around at the fog. "Where is this?"

He kind of waved his hand. "I can't really say. Where would you want it to be?"

How do you answer a question like that? I couldn't.

He could. He put the back of his hand against my cheek and gently turned my face toward him and bent close. He did something I can only describe as what you do when you pick up a magazine and run your thumb across the edge of the pages and flip it open somewhere. Only he did it inside my head somehow. Anyway there was a blaze of golden light that made me blink.

WHEN I got my eyes adjusted to it the gray was gone. When I was a kid I worked one year on a farm in Vermont. I used to go for the cows in the late afternoon. The day pasture was huge, with a stand of pine at the upper end and the whole thing was steep as a roof, with granite outcroppings all over, gray, and white limestone. That's where we were, the very smell of it, the little lake with the dirt road around the end of it far down at the bottom and the wind hissing through the pine trees up there and a woodchuck ducking out of sight on the skyline. I could even see three of the Holsteins, standing level on the sidehill in that miraculous way they have as if they had two short legs and two long ones. I never did figure out how they do it.

And I got a flash of panic, too, because my elevator door was gone—but he seemed to know and just waved his hand casually over to my left. And there it was, a Rockefeller Center elevator door in the middle of a Vermont pasture. Funny. When I was fourteen that door in the pasture would have scared the hell out of me. Now I was scared without it. I looked around me and smelled the late August early evening and marveled.

"It's so real," is what I said.

"Seems real."

"But I was here—right here—when I was a kid."

"Seemed real then, too, didn't it?"

I think he was trying to make me rethink all along the line—not so much to doubt things, but to wipe everything clean and start over.

"Belief or nonbelief has no power over objective truth," is

what he told me. He said that if two people believe the same thing from the same evidence, it means that they believe the same thing, nothing more.

While I was chewing on that he took the sketches out of my hand—the same ones I just did for you. I had quite forgotten I was holding them. He looked at them and grunted. "It's like that, is it?"

I took back the sketches and began to make my speech.

I said, "You see, it's like this. Here the balance is—" and he kind of laughed a little and said wait, wait, we don't have to go through all that.

I think he meant, words. I mean he touched the side of my face again and made me face him and did that thing with his eyes inside my head. Only this time it was like taking both your thumbs and pulling open the pages of a book that are sort of stuck together. I wouldn't say it hurt but I wouldn't want much more of it either. I remember a single flash of shame that things I'd read, studied, things I'd thought out, I'd been careless with or had forgotten. And all the while—a very short while—he was digging in my head he was curing the shame, too. I began to understand that what he could get from me wasn't just what I'd learned and understood—it was everything, *everything* that had ever passed through my pipeline. And all in a moment.

Then he stepped back and said, "Bastard!"

I thought, what have I done?

He laughed at me. "Not you. *Him.*"

I thought, oh. The Voice on the phone. The one who sent me.

He looked at me with those sixty-thousand candlepower eyes and laughed again and wagged his head.

"I swore I'd have nothing to do with him any more," he said, "and now look—he's thrown me a hook."

I guess I looked mixed-up, because I was. He began to talk to me kindly, trying to make me feel better.

He said, "It's not easy to explain. You've learned so much that just ain't so and you've learned it from people who also didn't understand. Couldn't. It goes back a long time. I mean, for you it does. For me—well, time is different here."

He thought a bit and said, "Calling me Lucifer was real bright of you, you know that? Lucifer means 'bringer of light.' If you're going to stick with the yingyang symbol—and it's a good one—you'll see that there's a center for the dark part and a center for the light—sometimes they're drawn in, a little dot on each part right where a pollywog's eye would be. I am that dot and the Voice you heard is the other one. Lucifer I may be, but I'm not the devil. I'm just the

other. It takes two of us to make the whole. What I just might have overlooked is that it takes two of us to keep the whole. Really, I had no idea—" and he leaned forward a got another quick look inside my head—" no idea at all that things would get into such a mess so quickly. Maybe I shouldn't have left."

I had to ask him. "Why did you?"

HE SAID, "I got mad. I had a crazy notion one day and wanted to try something and he didn't want me to do it. But I did it anyway and then when it got me into trouble he wouldn't pull me out of it. I had to play it all the way through. It hurt." He laughed a funny laugh. I understood that 'it hurt' was a gigantic understatement. "So I got mad and cut out and came here. He's been yelling and sending messages and all, ever since, but I paid him no mind until you."

"Why me?"

"Yes," he said, "why you?" He thought it over. "Tell me something—have you got anything to keep you where you are? I mean a wife or a career or kids or something that would get hurt if you suddenly disappeared?"

"Nothing like that, no. Some friends—but no wife, no folks. And my job's just a job."

"Thought so," he said. Talking to himself, he said, "Bastard. Built this one from the ground up, he did. Knew damn well I'd get a jolt when I saw what a rotten mess this was." Then he said very warmly, "Don't take that personally. You can't help it."

I couldn't help it. I couldn't help taking it a little personally either.

Maybe I was a little sharp when I said, "Well—are you going to come back or not?"

He gave it right back to me.

"I really don't know," he said. "Why don't I leave it to you? You decide."

"Me?"

"Why not? You got yourself into this."

"Did I?"

"No matter how carefully he set you up for it, friend, he had to get your permission first. Right?"

I remembered that Voice: *How far are you willing to go?*

The one I had called Lucifer fixed me with the blazing eyes. "I am going to lay it right on you. I will do what you say. If you tell me to stay here, to stay out of it, it's going to be like Orwell said: 'To visualize the future you must visualize a boot stamping eternally on a human face.' But if I come back it's going to be almost as bad. Things are really out of hand, so much that it can't be straightened out overnight. It would take years. People aren't made to take the truth on sight and act on it. They have to be prodded and

pushed—usually by being made so miserable in so many ways that they get mad. When enough of them get mad enough they'll find the way."

"Well, good, then."

He mimicked me. I think he was a little sore and just maybe he didn't want to go back to work.

"'Well, good then,'" he mocked me. "We'll have to shovel stupidity on them. We'll have to get them into long meaningless wars. We'll make them live under laws that absolutely make no sense and keep passing more of them. We'll lay taxes on them until they can't have luxuries and comforts without getting into trouble and we'll lay on more until it hurts to buy enough just to live."

I said, "That's the same thing as the boot!"

He said, "No it isn't. Let the class of '50 take over and you'll have that. Orwell said *eternally* and he was right. No conflict, no dissent, no division, no balance. If I come back, there'll be plenty of all that. People will die—lots of them. And hurt—plenty."

"There's no other way?"

"Look," he said, "you can't give people what they want. They have to earn it or take it. When they start doing that there'll be bombings and riots and people—especially young people—will do what they want to and what works for them, not what they're told. They'll find their own ways—and it won't be anything like what grandpa said."

I thought about all that and then about the class of '50 and the stamping boot.

"Come back," I said.

He sighed and said, "Oh, God."

I don't know what he meant. But I think he was glad.

SUDDENLY—well, it seemed sudden—there was more light outside the Automat than inside. I felt as dazed as my friend looked.

I said, "And what have you been doing since nineteen fifty?"

He said, "Don't you understand? All this happened last night! Last night was nineteen fifty! I got back into the elevator and walked into my—your—the office and there you were!"

"And the dev—Lucif—whoever it was, he's back, too?"

"Time is different for him. He came back right away. You've already told me enough about what's been happening since then. He's back. He's been back. Things are moving toward the center again. It's hard to do, but it's happening."

I stuck my spoon into my cold old coffee and swirled it around and thought of the purposeless crime and the useless deaths and the really decent people who didn't know they were greedy, and a deep joy began to kindle inside me.

"Then maybe it's not all useless."

"Oh, God, it better not be," he whispered. "Because all of it is my fault."

"No it isn't. Things are going to be all right." As I said that I was sure of it. I looked at him, so lost and dazed—and I thought, *I am going to help this guy. I am going to help him help me to understand better, to work out how we can bring it all into balance again.* I wondered if he knew he was a messiah, that he had saved the world. I don't think he did.

Sudden thought: "Hey," I said, "did he tell you why he dropped out mad like that? What was it—he did something the other one didn't want him to do?"

"Didn't I mention that? Sorry," said the dazed man. "He got tired of being a—a force. Whatever you call it. Spirit. He wanted to be a man for a while, to see what it was like. He could do it—but he couldn't get out of it again without the other's help. So he walked around for a while as a man—"

"And?"

"And got crucified." ★

★★GALAXY STARS★★



Jack Williamson, one of science fiction's real old-timers, now enjoys two careers—college teaching and writing sf. Born in 1908, Jack saw his first story, "The Metal Man," appear in the December, 1928, issue of *Amazing Stories*. Since then he has had well over three million words of sf published, including more than twenty novels.

Returning to college in the late 1950s, he picked up his A.B. (*summa cum laude*) and his M.A., then went on to earn his Ph.D. in 1964 with a thesis on H. G. Wells. Jack is now an associate professor of English at Eastern New Mexico University in his home town of Portales. At the university Jack inaugurated one of the first college-level courses in sf as literature.

"Theoretically, I suppose," Jack tells us, "I should be writing westerns. I was born in the mining-and-cattle town of Bisbee in the Arizona Territory. We lived on a cattle ranch in the mountainous wilds of Sonora until the Mexican Revolution and then moved by covered wagon to New Mexico when I was seven years old. But somehow the world of scientific possibility always seemed more exciting to me than the rather grim real world. I started writing science fiction on the sandhill homestead in New Mexico before I went off to college, and I don't hope to get over it . . ."

By the way, Larry Eisenberg's new book *The Best Laid Schemes* is published by Macmillan—not by Scribner's as we mistakenly reported last month.

SISTER SHIPS

The spacer may love his ship—but never understand her. That's a job for his wife . . .

A COMMODORE GRIMES NOVELETTE

A. BERTRAM CHANDLER

I

CAPTAIN JOHN GRIMES stood impassively in the port wing of his bridge as his ship, the round-the-world tramp *Sonya Winneck*, slid gently toward her berth—but although his stocky body was immobile, his brain was active. He was gauging speed, distances, the effect of the tide. His engines were stopped, but the vessel still seemed to be carrying too much way. He was stemming the ebb but, according to the Port Directions, there was sometimes—not always—an eddy, a counter-current, along this line of wharfage. In any case the clocking would be a tight fit. Ahead of him was *Iron Baron*, one of the steel trade ships, a huge, beamy brute with gigantic deck cranes almost capable of lifting her by her own bootstraps. In the berth astern was the Lone Star Line's *Orionic*, with even more beam to her than the *Baron*.

"Port," ordered Grimes. "Hard over."

"Hard aport, sir," replied the quartermaster.

Sonya Winneck was accosting the wharf at a fairly steep angle now, her stem aimed at a bollard just abaft *Iron Baron's* stern. Grimes lifted his whistle to his lips and blew one short, sharp blast. From the fo'c's'le head came the rattle of chain cable as the starboard anchor was let go, then one stroke of the bell to signal that the first shackle was in the pipe.

Grimes looked aft. *Sonya Winneck's* quarter was now clear of *Orionic's* bows. "Midships. Slow astern."

He heard the replies of the man at the wheel and the Third Officer. He felt the vibration as the reversed screw bit into the water. But would "slow astern" be enough? He was about to order "half astern," then realized that this was what he was getting, if not more. The transverse thrust of the screw threw *Sonya Winneck's* stern to port even as her headway was killed. Already a heaving line was ashore forward and, snaking after it, the first of the mooring lines. Aft, the Second Mate was ready to get his first line ashore.

"Stop her," ordered Grimes. "That will do the wheel, thank you."

On fo'c's'le head and poop the self-tensioning winches were whining. Grimes, looking down from the bridge wing to the marker flag on the wharf, saw that he was exactly in position. He made the traditional arms-crossed-above-the-head gesture—*Make her fast as she is*—to the Chief Officer forward, the Second Officer aft. Then he walked slowly into the wheelhouse. The Third Officer was still standing by the engine control pedestal.

"Finished with engines, Mr. Denham," said Grimes coldly.

"Finished with engines, sir." The young man put the lever to that position. A jangling of bells drifted up from below.

"Mr. Denham—"

"Sir?" The officer's voice was an almost inaudible squeak. He looked frightened—and, thought Grimes, well he might be.

"Mr. Denham, I am well aware that in your opinion I'm an outsider who should never have been appointed to command this vessel. I am well aware, too, that in your opinion at least your local knowledge far surpasses mine. Even so, I shall be obliged if you will carry out my orders, although you will still have the right, the obligation, in fact, to query them—but not when I'm in the middle of berthing the bloody ship!" Grimes simmered down. "For your information, Mr. Denham, even I realized that slow astern would not be sufficient. I was about to order more sternpower—then saw that you had

taken matters into your own possibly capable but definitely unqualified hands."

"But, sir—"

Grimes' prominent ears had reddened.

"There are no 'buts.' "

"But, sir, I *tried* to put her to 'slow astern.' The lever jerked out of my hand to 'full.' "

"Thank you, Mr. Denham," said Grimes at last. He knew that the young man was not lying. "You'd better see the engineer, or the electrician, and get those controls fixed. The next time they might do the wrong thing instead of the right one."

He strode through the chartroom and then down to his quarters. Sonya, who had watched the berthing from the lower bridge, was waiting for him. She rose from her chair as he entered the day cabin and stood there, tall, slim and graceful. Her right hand snapped up to the widow's peak of her shining auburn hair.

She said, "I salute you, Cap'n. A masterly piece of shiphandling."

Grimes grunted.

"It was like something out of one of your own books." She went to the case on the bulkhead in which were both privately owned volumes and those considered by the Winneck Line to be fit and proper reading for its Masters. From the Company's shelf she lifted *The Inter-Island Steamer Express*, by John Grimes. She read aloud, "These captains, maintaining their timetables and berthing and unberthing their big, sea-going passenger ferries in the most appalling weather conditions, were without doubt among the world's finest shiphandlers."

"The weather conditions this morning aren't appalling," said Grimes. "In any case, that was on Earth. This is Aquarius."

AQUARIUS, as its name implied, was a watery world.

It lay in toward the center from the Rim Worlds, fifty or so light years to the Galactic East of the Shakespearian Sector. It was Earth-type insofar as gravitation, atmosphere and climate were concerned, but was geographically dissimilar to the Home Planet. There were no great land masses—only chains of islands, some large, some small, some no more than flyspecks on even a medium-scale chart. In this respect it was like Mellise, one of the planets of the Eastern Circuit. Unlike Mellise, it possessed no indigenous intelligent life. Men had colonized it during the Second Expansion—and, as was the case with most Second Expansion colonizations, it had been a case of discovery and settlement by chance rather than by design. Time and time again it happened, that disastrous, often tragic sequence of

events. The magnetic storm, the gaussjammer thrown light-millennia off course, her pile dead and the hungry emergency diesels gulping precious hydrocarbons to feed power to the Ehrenhaft generators, the long plunge into and through the Unknown, the desperate search for a world, any world, that would sustain human life . . .

Lode Messenger stumbled upon Aquarius and made a safe landing in the vicinity of the North Magnetic Pole. Like all the later ships of her period she carried a stock of fertilized ova, human and animal, a wide variety of plant seeds and an extensive technical library. Even when the gaussjammers were on regular runs, as *Lode Messenger* had been, there was always the possibility that their people would finish up as founders of a new colony. When the planet was rediscovered by Commodore Shakespeare during his voyage of exploration out toward the Rim, the settlement was already well established. With the Third Expansion it accepted its quota of immigrants, but insisted that all newcomers work for a probationary period in the merchant or fishing fleets before taking up employment ashore if they so wished. Somebody once said that if you wanted to emigrate to Aquarius you had to hold at least an Able Bodied Seaman's papers. This was not quite true, but it was not far from the truth. It had also been said that Aquarians had an inborn dislike and distrust of spaceships but loved sea-going ships. This was true.

Grimes, although not an immigrant, was a seaman of sorts. He was on the planet by invitation, having been asked by its rulers—the Havenmaster and the Master Wardens—to write a history of the colony. For that he was well qualified, being acknowledged as the leading maritime historian specializing in Terran marine history in the Rim Worlds. His books—*The Inter-Island Steamer Express, The Flag of the Southern Cross*, *The Western Ocean Greyhounds* and *Times of Transition*—had sold especially well on Aquarius, although in the worlds of the Rim Confederacy they were to be found mainly only in libraries, and in very few libraries at that.

And Commodore Grimes, Rim Worlds Naval Reserve, Master Astronaut, was more than just a writer about the sea. He held the rank of admiral—honorary, but salt water admiral nonetheless—in the Ausiphalian Navy on Tharn. Captain Thornton, the havenmaster, had said, "Legally speaking, that commission of yours entitles you to a Certificate of Competency as a Master Mariner. Then you can sail in com-

mand of one of our ships, to get the real feel of life at sea."

"I'm not altogether happy about it, Tom," Grimes had objected, not too strongly.

"I'm the boss here," Thornton had assured him. "And, in any case, I'm not turning you loose until you've been through crash courses in navigation, seamanship, meteorology, cargo stowage and stability."

"I'm tempted," Grimes had admitted.

"Tempted?" Sonya had scoffed. "He's just dying to strut his bridge like the ancient mariners he's always writing about. His only regret will be that you Aquarians didn't recreate the days of sail while you were about it."

"Now and again I regret it myself," admitted the havenmaster. "Fore and aft rig, a diesel auxiliary, electrical deck machinery—there'd be something quite fast enough for some of our trades and economical to boot. But I'm well known as an enemy of progress—progress for its own sake, that is."

"A man after my own heart," said Grimes.

"You're just a pair of reactionaries," Sonya had told them.

Grimes supposed he was a reactionary; but he enjoyed this world. It was efficiently run—but with ample recognition that there were things more important than efficiency. There was automation—up to a certain point, but up to that point only. The havenmaster had admitted that he was fighting a rearguard action to try to keep control of the ships in the hands of the seamen officers. There was a love of and respect for the sea. Both were understandable. From the very beginning of the colony these people had grown up on a watery world and the books most in demand in their technical libraries had been those on shipbuilding, seamanship and navigation. Aquarius was poor in radioactives but rich in mineral oil, so the physicists had never been able—as they had been on so many worlds—to take charge. The steam engine and the diesel were still the prime movers even in the air, where the big passenger-carrying airships did the work that on other planets was performed by jetplanes and rockets.

The surface ships were, by modern standards, archaic. Very few of them ran to bow-thrusters—and those only ferries, cargo and passenger, to which the strict adherence to a timetable was of paramount importance, whose masters could not afford to make a leisurely job of backing into a roll-on-roll-off berth and therefore required the additional maneuvering aid. There was some containerization, but it was not carried to extremes, it being recognized that

the personnel of the cargo-carriers were entitled to leisure time in port. Self-tensioning winches and, for cargo handling, cranes rather than derricks cut down the number of hands required on deck and enginerooms were almost fully automated, with bridge control for arrival and departure maneuvers.

There were electronic navigational aids a-plenty—radar, echometer, loran, shoran, an inertial system, position-fixing by artificial satellite—but these the havenmaster frowned upon, as did most of the senior shipmasters. Thornton quoted from Grimes' own book, *Times of Transition*: "The electronic wizards of the day, who were not seamen, failed to realize that a competent navigator, armed only with sextant, chronometer and ephemeris, together with a reasonably accurate log, can always fix the position of his ship with reasonable accuracy provided that there is an occasional break in the clouds for an identifiable celestial body to shine through. Such a navigator is never at the mercy of a single fuse."

"And our being at the mercy of machinery, John, is what I'm trying to avoid," said Thornton. "Unless we're careful our ships will be officered by mere button pushers, incapable of running a series of P/Ls. Unluckily, not all the Master Wardens think as I do. Too many of them are engineers and businessmen—and in my experience such people have far less sales resistance than we simple sailors."

"And what dogs have they been sold?" asked Grimes.

"One that's a real bitch—from my viewpoint and probably from yours. You've heard of Elektra?"

"Yes," broke in Sonya. "Carinthian Sector. Third Expansion colonization." She grinned a little unkindly. "It's a planet where the minimum qualification for immigration is a doctorate in one of the sciences, preferably physics. But they have to let in occasional chemists, biologists and the like to keep the dump habitable."

"And they have quite a few now with degrees in salesmanship," went on the havenmaster. "One of them was here, a few years back."

"And he sold you this female pup?" Grimes asked.

"He did that. The Purcell Navigator. It's named, I suppose, after its inventor. It's a sealed box, with the gods know what sort of mess of memory fields and the like inside it. It's hooked up to all the ship's electronic navigational gear—gyrocompass, radar, echometer, loran, shoran—just name a pie and it's got a finger in it. Or a tentacle. It knows just where the ship is at any given second. If you ask it nicely it might condescend to tell you."

"You don't like it," said Grimes.

"I don't like it. To begin with, some of the shipowners—and this is a private enterprise planet, remember—feel that now the bridge can be automated to the same extent as the engineroom, with just one man, the master, in charge, snoring his head off on the chartroom settee and being awakened by an alarm bell just in time to rub the sleep out of his eyes and take his ship into port. But that's not the worst of it. Now the Institute of Marine Engineers is saying, 'If navigation is only a matter of pushing buttons we're at least as well qualified as deck officers.'"

"I've heard that often enough," said Grimes. "Even in Space."

"Does anybody know how these Purcell Navigators work?" asked Sonya.

"No. One of the terms of sale is that they must be installed by technicians from the world of manufacture—Elektra. Another is that they must not, repeat not, be tampered with in any way. As a matter of fact the chief electrician of the Carrington Yard did try to find out what made one tick. He was lucky to lose only a hand."

"It seems," said Grimes, "that I came here just in time."

"What do you mean, John?"

"Well, I shall be able to enjoy the last of the old days, the good old days, on Aquarius. And I shall have the material for a few more chapters of my *Times of Transition*."

"He likes being morbid," said Sonya. "Almost as much as he likes being reactionary."

"Mphm," grunted Grimes. "Old-fashioned sounds better."

He got up from his chair, walked soundlessly over the carpeted floor to the bookshelves that formed a space-divider in the huge, circular room that was called the Havenmaster's Lookout. He stared at the rows of books, most of them old but in recent printings, only a few of them new. And they were *real* books, all of them, not spools of microfilm. There were the standard works on the old arts of the seaman, hopelessly out of date on most worlds, but not yet on this one—Brown, Nicholl, Norie, Riesenberg, Lecky, Thomas—and the chronicles of the ancient explorers and navigators—Hakluyt, Dampier, Cook, Flinders, Bligh. Then there were the novels—Conrad of course, McFee, Monsarrat, Herman Wouk, Forester. Grime's hand went out to Melville's *Moby Dick* and he remembered that odd Hall of Fame to which he had been whisked from the mountaintop on Kinsolving—and felt regret that he had not been able to meet Lieutenant Commander Queeg, Admiral Lord Hornblower and Captain Ahab. Were there white whales in the Aquarian seas?

He turned, saw that his wife and Captain Thornton had risen from their own seats and were standing, staring out through the huge window that formed the entire outer wall of the Lookout that, in its turn, was the top level of the two-thousand-foot-high control tower. Above the Lookout towered only the mast from which sprouted antennae, radar scanners, anemometers and the like, was topped by the powerful, group-flashing Steep Island Light.

Grimes walked slowly to join Sonya and his host, gazing out through the clear glass into the darkness. At regular intervals, the beam of the Light, a sword of misty radiance, swept overhead. Far to the south a loom of luminescence on the distant sea horizon was Port Stellar, and to east and west, fainter still, were other hazy luminosities—island cities, island states. Almost directly below was a great passenger liner, from this height no more than a gaudy, glittering insect crawling over the black carpet of the sea.

In spite of the insulation and the sound-proofing, the thin, high whine of the wind was audible here.

Sonya shivered. "The winds of change are blowing," she whispered.

"A seaman should be able to cope with the wind," said the havenmaster. "I wonder how you'll cope, John? I've arranged for you to take over *Sonya Winneck* at Port Stellar tomorrow."

"I'll get by," said Grimes.

"He always does," said Sonya. "Somehow."

II

GRIMES fell in love with *Sonya Winneck* upon first sight. She was, of course, his first sea command. Nonetheless, she made an immediate appeal to the eye, even to the eye of one who, for all his admiral's commission, had very little practical knowledge of ocean-going ships. The lady was a tramp—but the tramp was also a lady.

She was five hundred feet long overall, with a seventy-foot beam. Bridge and funnel—this latter scarlet, with a black top and two narrow black bands—were amidships. Her upperworks and deck cranes were white, her hull green with a yellow ribbon. The boot-topping was red.

There was more to a ship than outward appearance, however—and Grimes, himself a shipmaster of long standing, knew this as well as the most seasoned master mariner on the oceans of Aquarius. But she had, he discovered, a fair turn of speed, her diesel-electric drive pushing her through the water at a good twenty knots. She was single screw, with a right-handed propeller. Her

wheelhouse and chartroom reminded him almost of the spaceships that he was accustomed to command, but the electronic gadgetry was not unfamiliar to him after the sessions he had put in on the various simulators in the havenmaster's control tower. The only thing that he did not like was the Purcell Navigator squatting like a sinister octopus in its own cage abaft the chartroom. Oh, well, he would make sure that his young gentlemen had no truck with the electronic monster—he hoped.

"I don't like it either," said the tall, skinny, morose Captain Harrell, whom Grimes was relieving. "But it works. Even I have to admit that. It works."

Harrell led Grimes down to the big, comfortable day cabin where the two wives—Mrs. Harrell very dumpy and mousy alongside the slender Sonya—were waiting. The Harrells' baggage, packed and ready to be carried ashore, was against one bulkhead. On a table stood bottles and glasses, a bowl of cracked ice. The officers came in, neat in their slate-gray shirt-and-shorts uniforms and their black, gold-braided shoulderboards, to say goodbye to their old captain and to greet their new one. There was Wilcox, Chief Officer, a burly, blond, young—but not too young—giant. Andersen, the Second, was another giant, but red-haired. Viccini, the Third, was slight and dark. Jones, the Engineer, a fat, bald man who could have been any age, came up to be introduced with Mary Hales, the Electrician, a fragile, silver-headed little girl who looked incapable of changing a fuse. Finally came Sally Fielding, Stewardess-Purser, plump and motherly.

Glasses were charged. "Well, Captain," began Harrell. "Or should I say Commodore, or Admiral?"

"Captain," Grimes told him.

"Well, Captain, your name's on the Register and the Articles. You've signed the Receipt for Items Handed Over. You've a good ship and a good team of officers. Happy sailing."

"Happy sailing," everybody repeated.

"Thank you, Captain," replied Grimes. "And I'm sure that we all wish you an enjoyable leave."

"And how are you spending it, Mrs. Harrell?" asked Sonya.

"We've a yacht," the other woman told her. "Most of the time we shall be cruising around the Coral Sea."

"A busman's holiday," commented Grimes.

"Not at all," Harrell told him, grinning for the first time. "There'll just be the two of us, so there'll be no crew problems. And no electronic gadgetry to get in my hair either."

"Happy sailing," said Grimes, raising his glass.

"Happy sailing," they all said again.

AND it was happy sailing in the beginning.

It did not take Grimes long to find his feet, his sea legs. "After all," he said to Sonya, "a ship is a ship is a ship—" He had been afraid at first that his officers and crew would resent him, an outsider appointed to command with no probationary period in the junior grades—but there hung about him the spurious glamor of that honorary admiral's commission, and his reputation as a maritime historian earned him respect. *Sonya Winneck's* people knew that he was on Aquarius to do a job, a useful job, and that his sailing as master of her was part of it.

Sonya enjoyed herself, too. She made friends with the other women aboard—with Mary Hales, with Sally Fielding, with the darkly opulent Vanessa Wilcox who had joined just before departure from Port Stellar, with Tessa and Teena, the Assistant Stewardesses, with the massive Jemima Brown who was queen of the beautifully mechanized galley. Shipboard life—surface shipboard life—was new to Sonya in spite of its inevitable resemblances to life aboard a spaceship. She had much to see, much to inquire into.

The weather was mainly fine, with warm days, and nights of just sufficient chill to provide a pleasant contrast. Grimes played with the sextant he had purchased in Port Stellar and became skilled in its use, taking altitude after altitude of the sun, of the planet's two moons, of such stars, planets and artificial satellites as were visible at morning and evening twilight. His officers watched with a certain amusement as he plotted position after position on the working chart, congratulated him when these coincided with those for the same times shown on the chart that was displayed on the screen of the Purcell Navigator. And he was pleased to note that they tended to ignore that contraption, consulting it only when there was a wide variance between positions taken by two observers.

A shipmaster, however, was more than a navigator. Pilotage was not compulsory for the majority of the ports visited by *Sonya Winneck*, although in each one of them pilots were available. Grimes had taken a pilot sailing from Port Stellar, but after the six-day run between that harbor and Tallisport he decided to try to berth the ship himself. After all, he had spent hours in the simulator and, since joining his ship, had read

Ardley's *Harbor Pilotage* from cover to cover.

This book, a standard Terran Twentieth Century work on the handling and mooring of ships, had been given him by the havenmaster, who had said, "You should find this useful, John. Ardley was one of the authorities of his time. One thing I like about him—he says that anchors are there to be used. For maneuvering, I mean." He laughed, added: "But don't go making too much of a habit of it. It annoys Chief Officers!"

And so, having made a careful study of the large-scale chart, the plan and the sailing directions, Grimes stood in to Tallisport shortly after sunrise. The wheel was manned, the engines on standby. According to the Tide Tables it was just two hours after first high water, which meant that *Sonya Winneck* would be stemming the ebb on her way in. But, Wilcox had told him, complications were bound to crop up in this river-harbor. All wharfage was on the western bank of the river, on the starboard hand entering—and to berth starboard-side-to was to risk damage in a vessel with a right-handed single screw—especially when the master was an inexperienced shiphandler. Sometimes, however, an eddy, a counter-current, set strongly along the line of wharfage, giving the effect of flood tide. If this eddy were running—and only visual observation when approaching the berth would confirm this or not—Grimes would be able to bring the ship's head to starboard—letting go the starboard anchor to stub her around—and then ease her alongside, port-side-to, with the anchor still on the bottom.

GRIMES stood in to Tallisport. With his naked eye he could now see the main leads, two white towers, nicely in line. He told the harbor quartermaster to steer for them, to keep them right ahead. Yes, and there was the breakwater to port, with its red beacon. The red beacon was abeam now and *Sonya Winneck* was sweeping into the harbor in fine style.

"Hadn't you better reduce speed, sir?" suggested the Third Officer.

"Mphm. Thank you, Mr. Viccini. Better make it slow—no, dead slow."

"Dead slow, sir."

The rhythmic thudding of the diesel generators was unchanged, but there was a subtle diminution of vibration as the propeller revolutions decreased. The main leads were still ahead, but coming abeam to starboard were the two white obelisks that were the leads into the swinging basin. "Port ten degrees," ordered Grimes. Would it be enough? Then he saw the ship's head swinging

easily, heard the clicking of the gyro-repeater.

"Midships. Steady."

He went out to the starboard wing of the bridge and looked aft. The Swinging Basin Leads were coming into line astern nicely.

"Steady as you go," he called.

Now *Sonya Winneck* was creeping up the last navigable reach of the river. To starboard was the line of wharfage and behind it the clumps of greenery, spangled with blossoms like jewels, the white-walled houses, all clean and bright in the morning sun. But Grimes had no eye for scenery; he was too new to the game. Through his binoculars he studied the quay at which he was to berth, the farthest upriver. Beyond it was a mess of dredging equipment, all part and parcel of the port expansion plan. Which side to would it be? He had still to make up his mind.

"Sir," said the Third Officer.

"Yes?"

"It doesn't look as though the eddy is running, sir."

"What makes you think that, Mr. Viccini?"

The young man pointed to the small craft—a yacht and two fishing vessels—past which they were sliding. Their upstream moorings were bar taut, their downstream lines hanging in bights.

"Mphm," grunted Grimes. So it was ebb all over the river. He made up his mind. "Tell the Chief and Second Officers it will be starboard side to. Tell Mr. Wilcox to have his port anchor ready."

He came to starboard, lined the ship's head up on the upriver end of the wharf. With his mouth whistle he blew one short, sharp blast. The chain cable of the port anchor rattled out through the pipe, the grip of the flukes in the mud acted as a brake. *Sonya Winneck* was still making way, but with the ebb against her and the drag of the anchor she was almost stopped.

This, thought Grimes as he nosed in toward his berth, *is easy.*

But there was an eddy after all; as soon the ship was well inside it she was swept upstream toward the dredges, buoys and pipelines.

"Hard a-starboard," Grimes ordered.

The anchor was still holding, luckily, and it acted as a fulcrum, checking the upstream motion of the stem while the stern was free to swing. The vessel was broadside on to the line of the river now, still nearing the wharf, but head on.

"Swing her, sir," suggested Viccini. "Get a headline ashore and tell the linesmen to run it to the downriver end of the berth."

Yes, thought Grimes, *it'll work. It better . . .*

A heaving line snaked ashore from the fo'c's'le head and was caught by one of the waiting linesmen. He and another man ran with it to the post indicated by the

Chief Officer. Then the whining self-tensioning winch took the weight. Belatedly Grimes thought that he had better stop the engines, had better go astern before the ship's stem crashed through the wharf stringer. But the order had been anticipated.

A good lad, Viccini, he thought. *But he'd better not make a habit of this sort of thing.*

Now *Sonya Winneck's* bows were being pulled downriver against the counter current, her stem still only a few feet from the stringer, the stern swinging in easily.

"Stop her," Grimes ordered.

She was alongside now with the very gentlest of impacts and the leading hand of the mooring gang was shouting up that she was in position.

Grimes filled and lit his pipe. "Make fast fore and aft," he said. "That'll do the wheel. Finished with engines. Mr. Viccini, I appreciate your help. Don't get me wrong, I like an officer to show initiative. But I think you should try to remember that there's only one master on the bridge."

"But, sir—"

"That's all right, Mr. Viccini. You did the right things and I appreciate it. I'll try to do the right things myself in future."

Probably the Third Officer would have made a full explanation to Grimes during the day, but as soon as the gangway was out the Winneck Line's local agent came aboard with the mail and in it was a letter saying that Viccini was to be paid off to commence his annual leave and would be relieved that morning by a Mr. Denham.

SONYA WINNECK continued her steady, round-the-planet progress, hardly straying north or south of the Tropics. The meteorology screen in the chartroom rarely showed indications of disturbed weather conditions—and when it did these were invariably hundreds of miles from the ship's track. It was, Mr. Wilcox said to Grimes, the sort of weather you sign on for. The days and the nights passed pleasantly. At sea there was sunbathing, swimming in the ship's pool that, when inflated, occupied all the foredeck between the forward and after cranes of the main hatch, deck golf and, in the evenings, a variety of games or a wide selection of programs on the playmasters installed throughout the accommodation. In port, the day's business over, there was so much to see, so much to do. There was real swimming and surfing on sunwashed, golden beaches; now and again Grimes was able to hire a small sailing yacht for the day and found this sport much more enjoyable than on the lakes of Lorn, where wind was enough

but always bitter. There were the waterfront taverns—and both Grimes and Sonya loved seafood. The Terran lobster, prawn, oyster and herring had all done well in the Aquarian seas, and there were the local delicacies—the sand crawlers, which were something like Earth's trilobites must have been; also butterfly fish and sea steaks.

It was, for both of them, a holiday—but for Sonya it was a holiday that palled in time. It was all right for Grimes—he had his navigation to play with, his pilotage and, when he got around to it, research to carry out on the projected history and a chapter or so of it to write. His wife, however, was becoming bored.

It was a longish run between Lynnhaven and Port Johnson, all of seven days. During it Sonya found stacks of magazines in one of the lockers in the ship's office, old issues of the *Merchant Shipping Journal*, dating back for years. She brought a pile of them up to the day cabin.

She said, "These could be useful to you, John."

Grimes picked one up, leafed through it. "All rather dry stuff. At the moment I'm trying to get the essential feel of this planet."

"But they're full of information."

"So's a dictionary."

She said, "Suppose I go through them, making notes of anything that might be useful to you."

"That," he told her, "is very sweet of you, Sonya."

She made a grimace at him, then settled down with the supply of factual reading matter. Everything was there—specifications of new tonnage, sales, breakings up, wrecks, strandings, collisions, courts of inquiry. These latter were of interest to her. She could see how, time and time again, the unfortunate master in a few seconds had to decide what to do, while learned judges, counsel and marine assessors had weeks to decide what should have been done. And then, as she read on, nagging hints of some sort of pattern began to form in her trained mind. After all, she had been an intelligence officer—and a good one—in the Federation's Survey Service.

It seemed to her that the Winneck Line ships were getting into more than their fair share of trouble, with Lone Star Line running a close second. She knew little about the Lone Star Line, although she had seen their ships often enough in various ports and with Grimes had been a guest aboard a few of them for drinks and meals. They were excellently run and maintained vessels. She could speak with more authority regarding the Winneck Line; *Sonya Winneck* was typical of their newer tonnage. There wasn't

the same spit-and-polish as in the Lone Star, but there was a very real efficiency.

She read again the details of one of the collision cases. *Olga Winneck* had been bound up the Great Muddy River to Steelport, *Suzanne Winneck* had been outbound. The ships had passed each other—or had attempted to pass each other—in Collier's Reach, the navigable channel in that locality being both deep and wide. Suddenly *Olga Winneck* had taken a sheer to port and, in spite of the efforts of both masters to avert collision, had struck *Suzanne Winneck* on her port quarter, holing her so badly that she had to return to dock for repairs.

There was the transcript of evidence:

> Mr. Younghusband (Counsel for Havenmaster's Office): Can you tell me, Mr. Margolies, what orders were given by Captain Hazzard?
>
> Mr. Margolies (Third Officer of *Olga Winneck*): Yes, sir. The Master ordered "Hard a-starboard. Stop engines. Full astern."
>
> Mr. Younghusband: And were these orders carried out?
>
> Mr. Margolies: Of course. I at once put the controls to full astern.
>
> Mr. Younghusband: And what about the wheel? Quartermasters have been known to put the helm the wrong way, especially in an emergency.
>
> Mr. Margolies: The quartermaster put the wheel hard to starboard.
>
> Mr. Younghusband: And did you look at the rudder indicator? It has been suggested that steering gear failure was a cause of the collision.
>
> Mr. Margolies: Yes, I looked. The pointer was hard over to starboard.

And so it went on. It was established finally that both masters had done all the right things, although Captain Hazzard should have realized that a delay was inevitable when switching directly from full ahead to full astern. It was thought that a tidal eddy had been responsible for the collision. The court recommended that ships passing in Collier's Reach keep each well to their own sides of the channel, also that speed be reduced.

That was one case. There were others, and Sonya made notes, drew up tables. There had been collisions in narrow channels and in the open sea. Some had been in clear weather, some under conditions of reduced visibility. The causes were various: tidal eddies, steering-gear failure, radar breakdown and, inevitably, errors of judgment. The Winneck Line and

the Lone Star Line were having more than their fair share of marine casualties. It was odd, she thought. Odd. Something was rotten on Aquarius.

She asked Grimes if she could browse through the ship's files of correspondence.

He said, "Of course. They aren't Top Secret."

She found one labeled *Damage Reports*. It wasn't especially bulky. But its contents were interesting:

> Sir:
>
> I regret to have to report that while berthing this morning at No.3 Inner East, Port Kantor, the stem of the vessel came into heavy contact with the starboard side of the Lone Star Line's *Canopic*. Damage to *Sonya Winneck* was superficial only—please see enclosed sketch—but that to the other ship was considerable and, I am informed by *Canopic's* Master, will necessitate dry-docking.
>
> I entered the Harbor at 0545 hours, standing in on the main leads. When clear of the breakwaters I reduced speed to dead slow and altered course to port, steering for the shore end of No.3 Jetty. Visibility was good, wind was ENE at about 10 knots, tidal influence, it being just after low water slack, was negligible.
>
> When my bridge was just abeam of *Canopic's* stern, however, *Sonya Winneck* took a sudden sheer to port. I at once ordered hard a-starboard, stopped the engines and ordered full astern. Also I signaled to the Chief Officer to let go the starboard anchor, but unfortunately it jammed in the pipe, and was released too late to have any effect. In spite of the application of full starboard rudder and full stern power, contact occurred at 0555 hours.
>
> It is possible that I underestimated the force of the wind while standing in to my berth, but even so I find it hard to account for the sudden sheer to port . . .

But *Sonya Winneck* was sometimes at the receiving end:

> Sir:
>
> I have to report that this afternoon, at 1327 hours, the vessel was struck by the Company's *Elizabeth Winneck*, which same was proceeding downriver, bound for sea. Unfortunately, it being Saturday afternoon, with no work in progress, no officers were on deck at the time of the contact and the Com-

pany's gangway watchman was at his place of duty, at the head of the gangway on the inshore side of the vessel.

Damage, fortunately, was not extensive and all above the waterline. My Chief Officer's report is enclosed herewith. No doubt you will be hearing from Captain Pardoe of *Elizabeth Winneck* . . .

THERE were several more letters, some going into great detail, others composed on the good old principle of "least said, soonest mended." With two exceptions, the other ships concerned were units of either the Winneck or the Lone Star fleets. One of the exceptions was the contact with *Iron Duchess*. On that occasion Captain Harrell, Grimes' predecessor, had been trying to berth his ship during a howling gale. The other occasion was a collision with a ferry steamer in Carrington Harbor, with fortunately no loss of life.

So, Sonya wondered, just what was the connection between the Winneck Line and the Lone Star Line? She borrowed from the Chief Officer's office the bulky *Aquarian Registry* in which were listed comprehensive details of all the commercial shipping of the planet. Against the name of each ship were the lines of information—tonnage, gross, net and deadweight; propulsion; speed; length overall, length between posts, breadth and builders.

She looked up her namesake first. The *Sonya Winneck* had been built by the Carrington State Dockyard. She looked up *Canopic*. The builders were Varley's Dockyard in Steelport. She looked up *Elizabeth Winneck*—another Varley's job. So it went on. The majority of the collisions had occurred between ships constructed at those two yards.

And what about the contact that her husband had so narrowly averted that time coming into Newhaven? What was the name of the ship that he had almost but not quite hit? *Orionic* . . . She looked it up. Carrington State Dockyard.

She murmured, "All us Carrington girls must stick together."

"What was that?" demanded Grimes, looking up from his book.

"Just a thought," she told him. "Just a passing thought."

"Mphm."

"Do ships *really* have personalities?" she asked.

He grinned. "Spacemen and seamen like to kid themsleves that they do. Look at it this way. You're bringing a ship in—a spaceship or a surface ship—and you've failed to allow for all the factors affecting her handling. Your landing or berthing isn't up to your usual standard. But you

kid yourself and your officers that it wasn't your fault. You say, 'She was a proper little hellcat, wasn't she? Wouldn't do a thing right—' But you were the one who wasn't doing the thing right."

She said, "I've handled ships, too."

"I know, my dear. I've seen you do it. Your landing technique is a little too flashy for my taste."

"Never mind that now. I'm talking about surface ships. Is there any reason to believe, John, that two ships built to the same design, but in different yards, would have conflicting personalities?"

Grimes became annoyed with his wife. "Damn it all," he expostulated, "spacemen's superstitions are bad enough. I'm surprised that you, of all people, should pay any heed to them—and more that you should invent new superstitions of your own."

"But are they superstitions? Couldn't a machine absorb, somehow, something of the personalities of the people who built it, the people who handle it?"

"Hogwash," said Grimes.

"If that's the way you feel about it—" She slumped deep in her chair, looked at her husband. "All right. Before you get back to your precious research, what do the initials PN mean?"

"In what context?"

Sonya nudged with a slim, sandaled foot the bulky *Aquarian Registry* that lay open on the deck in front of her. "It's printed against the names of some of the ships, the newer ships—but only those built by the Carrington State Dockyard or Varley's."

"P—N?" muttered Grimes. "We can ask the Mate, I suppose."

"But you don't like to," she scoffed. "Captain, you know everything."

"Almost everything," he qualified smugly. The ship lurched suddenly—and Grimes knew the reason. When last he had been on the bridge, he had been slightly perturbed by the chart presented on the meteorology screen, televised from one of the weather satellites. Ahead of *Sonya Winneck* was a deepening depression, almost stationary. He had considered altering course to try to avoid it—but, after all, he had a big, powerful ship under his feet, well found, stoutly constructed. And, he had thought, he would not like to be remembered on this world as a fair-weather sailorman. Even so, he saw in his mind's eye that chart—the crowded isobars, the wind arrows with their clockwise circulation. Now the heavy swell running outward from the center, like ripples from a pebble dropped into a pond, was beginning to make itself felt. He looked at the aneroid barometer on the bulkhead. The needle had fallen ten

millibars since he had last set the pointer two hours ago.

He said, "I fear we're in for a dirty night."

She said, "It's what you're paid for."

He grunted, rose from his chair, went to the bridge by the inside companionway. In the chartroom he paused at the instruments over the chart table. According to the Chernikeeff Log, speed through the water had already dropped by half a knot. The barograph showed a fairly steep fall in pressure. The screen, set for the area through which the ship was passing, showed a chart almost identical with the one he had last seen.

He continued out to the bridge. The sky was mainly overcast now, with the larger of the two Aquarian moons—almost full—showing fitfully through ragged breaks in the clouds. There was high altitude wind, although it had yet to be felt at sea level. But the swell seemed to be increasing.

Young Mr. Denham, the Third Officer, came across from the wing of the bridge. He said rather too cheerfully, "Looks like a blow, sir."

"We can't expect fine weather all the time," Grimes told him. He stood with his legs well apart, braced against the motion of the ship. He wondered if he would be seasick, then consoled himself with the thought that both the actual Lord Nelson and the fictional Lord Hornblower had been afflicted by this malady.

Mr. Denham—since Grimes had torn that strip off him regarding the unauthorized engine movements, he had tended to overcompensate—went on chirpily, "At this time of the year, sir, the revolving storms in these waters are unpredictable. In theory the center should be traveling east away from us, but in practice it's likely to do anything."

"Oh?"

"Yes, sir. I remember one when I was in the old *Sally—Sara Winneck*, that is. Captain Tregenza tried to outmaneuver it—we had a pile of deck cargo that trip, teak logs from Port Mandalay. But it was almost as though the storm had a brain of its own. Finally it sat right on top of us and matched speed and course, no matter which way we steered. We lost all the cargo off the foredeck and the wheelhouse windows were smashed in—"

Cheerful little swine...

Grimes stared ahead into the intermittently moonlit night at the long swell that was coming in at an angle to the ship's course. *Sonya Winneck's* bows lifted, dipped, plunging into and through the moving dune of water. They lifted again and a white cascade poured aft from the break of the

fo'c's'le, spangled with jewels of luminescence.

Grimes said, "Anyhow, we have no deck cargo this trip."

"No, sir."

He remained on the bridge a while longer. There was nothing that he could do and he knew it. The ship was far from unseaworthy; she was capable of riding out a hurricane. There was ample sea room; the Low Grenadines were many miles to the north of her track. And yet he felt uneasy, could not shake off a nagging premonition. Something, he somehow knew, was cooking. But what?

At last he said, "You know where to find me if you want me. Good night, Mr. Denham."

"Good night, sir."

III

BACK in his quarters his uneasiness persisted. He told Sonya that he would sleep on the settee in his day cabin in order to be more readily available in the event of any emergency. She did not argue with him; she, too, felt a growing tension in the air. It could have been that she was sensitive to his moods but, she told him, she didn't think so.

She quoted: "*By the pricking of my thumbs/Something wicked this way comes . . .*"

He laughed. "A tropical revolving storm is not wicked, my dear. Like any other manifestation of the forces of nature, it is neither good nor evil."

She repeated, "*Something wicked this way comes . . .*"

They said good night then and she retired to the bedroom while he disposed himself comfortably on the settee. He was rather surprised that sleep was not long in coming.

But he did not enjoy his slumber for more than a couple of hours. A particularly violent lurch awakened him—almost pitched him off his couch. He switched on a light and looked at the aneroid barometer. The needle was down another twenty millibars, And in spite of the well insulated plating of the accommodation, he could hear the wind; he both heard and felt the crash of heavy water on deck. He thrust his feet into sandals and, clad only in his shorts—Captain's privilege—ran up to the bridge. He found the Second Officer—it was now the middle watch—in the wheelhouse, looking ahead through the big clear view screen. Grimes joined him. When his eyes became accustomed to the semidarkness he could see that the wind was broad on the starboard bow—he could see, too, that with each gust it was veering, working gradually around from southeast to south.

Southern Hemisphere, he thought. *Clockwise circulation*

and the low barometer on my left hand . . .

Now that he had something to work on, he might as well avoid the center with its confused, heavy seas.

"Bring her round to starboard easily," he ordered. "Bring wind and sea ahead."

"Wind and sea ahead, sir." The officer went to the controls of the autopilot. Grimes watched the bows swinging slowly.

He said, "That should do, Mr. Andersen."

"Course one three five now, sir."

Grimes went back into the chartroom, glanced at the chart and busied himself briefly with parallel rulers and dividers. He grunted his satisfaction. This new course took him even clearer of the Low Grenadines, that chain of rocky islets that were little more than reefs. There was nothing to worry about.

He was aware that Sonya was standing behind him—he caught a hint of her perfume, an awareness of her proximity.

He said without turning around, "Passengers not allowed on the bridge."

She asked, "Where are we?"

He indicated with the points of the dividers the penciled cross of the position, the new course line extending from it. "I'm more or less, but not quite, heaving to. But she's easier on this heading and it pulls her away from the eye of the storm."

She said, "There's a lot to be said for spaceships. They don't pitch and roll. When you're in your virtuous couch you're not slung out of it."

"We take what comes," he told her.

"We haven't much option, have we?"

They went below again, and she made coffee; they talked for a while, and eventually Grimes settled down to another installment of his broken night's sleep.

THE next time he awoke it was to the insistent buzzing of the bridge telephone in his bedroom. He rolled off the settee and stumbled through the curtained doorway. Sonya, looking rather hostile, lifted the instrument off its rest and handed it to him.

"Captain here," said Grimes into the mouthpiece.

"Second Officer, sir. There's a Mayday—"

"I'll be right up."

The officer in the chartroom straightened as Grimes came in. "It's *Iron Warrior*, sir. One of their big bulk carriers. She's broken down, lying in the trough. Her cargo's shifted. Zinc concentrates."

"Not good. Where is she?"

The young man stood away from the chart so that Grimes could see,

indicating the other ship's position with the point of a pencil. "Here, sir. Just twenty miles south of the Low Grenadines. She reports a southerly gale, the same as we're getting."

"Not good," said Grimes again. "Not good at all. She'll be making leeway, drifting—" Swiftly he measured the distance between *Sonya Winneck's* last recorded position—electronic navigation had its good points—and that given by the disabled ship. One hundred and fifty nautical miles. *Sonya Winneck* would have to turn, putting the wind right aft. With her high superstructure, this should mean a marked increase of speed. Suppose she made twenty knots over the ground. Twenty into one hundred and fifty gave seven and a half hours. He looked at the chartroom clock. Three-thirty.

"Put your stand-by man on the wheel, Mr. Andersen," he ordered. "I'm bringing her around manually."

He went out into the wheelhouse. Both moons were down but the sky had cleared. The scattered stars overhead were bright; and bright, too, were the living stars thrown aloft and back in the sheets of spray each time that the ship's prow crashed down to meet the racing seas. Grimes stood waiting, hoping for a lull, however brief. He glanced behind him and saw that the wheel was manned and that Andersen was standing beside the helmsman.

He looked ahead again. It seemed to him that the pitching of the ship was a little less pronounced, that sea and swell were a little less steep.

"Port," he ordered. "Easily, easily—"

He heard the clicking of the gyrorepeater as the ship's head started to come around. And then he saw it, broad on the starboard bow, a towering cliff of water, white-capped, a freak sea.

"Hard aport!" Grimes shouted.

She responded beautifully and the clicking of the repeater was almost one continuous note. She responded beautifully—but not quite fast enough. The crest of the dreadful sea was overhanging the bridge now, poised to fall and smash. Still she turned, and then she heeled far over to port, flinging Grimes and the Second Officer and the helmsman into an untidy huddle on that side of the wheelhouse. She shuddered as the tons of angry water crashed down onto her poop and surged forward along her decks, even onto the bridge itself. There was a banging and clattering of loose gear; cries and screams came from below. But miraculously she steadied and righted herself, surging forward with only a not very violent pitching motion.

Somehow Grimes made it to his

feet, disentangling himself from the other two men. He staggered to the untended wheel and grasped the spokes. He looked at the repeater card. Three two oh—carefully he applied starboard rudder and brought the lubber's line to the course that had been laid off on the chart, three three five. He saw that Andersen and the seaman had recovered their footing and were standing by awaiting further orders.

"Put her back on automatic," he told the Second Officer. "On this course." He relinquished the wheel as soon as this had been done. "Then take your watch with you and make rounds through the accommodation. Let me know if anybody's been hurt."

"Who the hell's rocking the bloody boat?" It was Wilcox, the Chief Officer. He saw Grimes by the binnacle. "Sorry, sir."

"It's an emergency, Mr. Wilcox. A Mayday call. *Iron Warrior*, broken down and drifting on to the Low Grenadines. We're going to her assistance."

"What time do you estimate that we shall reach her, Captain?"

"About eleven hundred hours."

"I'd better start getting things ready."

Grimes went back into the chartroom, to the transceiver that had been switched on as soon as the auto-alarm had been actuated by the Mayday call.

"*Sonya Winneck* to Ocean Control, Area Five," he said.

"Ocean Control to *Sonya Winneck*. I receive you. Pass your message."

"I am now proceeding to the assistance of *Iron Warrior*. Estimated time of visual contact ten-thirty hours, Zone Plus Seven."

"Thank you, *Sonya Winneck*. *Pleiaidic* cannot be in the vicinity until thirteen hundred hours at the earliest. Please use Channel Six when working *Iron Warrior*. Call me on Sixteen to keep me informed. Over."

He switched to Channel Six. "*Sonya Winneck* to *Iron Warrior*."

"*Iron Warrior* here, *Sonya Winneck*." The other Captain's voice was, perhaps, a little too calm.

"How are things with you, *Iron Warrior*?"

"Bloody awful, to be frank. A twenty-degree list and my boats and rafts smashed on the weather side. Estimated rate of drift, two knots."

"I should be with you in seven hours," said Grimes. "I shall try to take you in tow."

"We'll be ready, Captain."

"Good. We shall be seeing you shortly. Over and standing by."

Wilcox had come into the chartroom. He said, "Everybody's been informed, sir. Engineroom reckons they can squeeze out another half knot."

"Anybody hurt when she went over?"

"Only minor lacerations and contusions, sir."

"Such as this," announced Sonya, who had joined the others in the chartroom, putting a cautious hand up to the beginnings of a black eye. "But it's in a good cause."

IRON WARRIOR was not a pretty sight.

She lay wallowing in a welter of white water, like a dying sea beast. The seas broke over her rust-colored hull in great explosions of spray, but now and again, during brief lulls, the extent of the damage that she had sustained could be made out. She was a typical bulk carrier, with all the accommodation aft, only a stumpy mast right forward and her mainmast growing out of her funnel—and no cargo gear save one crane on the poop for ship's stores and the like. The crane, Grimes could see through his binoculars, was a twisted tangle of wreckage. That would explain why the *Warrior's* Captain had not used oil to minimize the effect of breaking waves; probably the entrance to the storerooms was blocked. And there must be some other reason why it had not been possible to pump diesel fuel overside—even though a mineral oil was not as effective as vegetable or animal oil, it was better than nothing. The side of the bridge seemed to be stove in and under the boat davits dangled a mess of fiberglass splinters.

Beyond her—and not far beyond her, a mere three miles—was the black, jagged spine of Devlin's Islet, dead to leeward. It seemed more alive, somehow, than the stricken ship; it looked like a great, malevolent sea monster creeping nearer and ever nearer through the boiling surf toward its dying prey.

Grimes was using oil—a thin trickle of it from his scuppers with wads of waste soaked in it thrown overside to leeward. Luckily there had been plenty of it in *Sonya Winneck's* storerooms—fish oil for the preservation of exposed wire ropes, a heavy vegetable oil for the treatment of wooden decks and brightwork. It was beginning to have an effect; the thin, glistening surface film was a skin over the water between the two ships, an integument that contained the sea, forcing some semblance of form upon it. The swell was still there—heavy, too heavy—but the waves were no longer breaking, their violence suppressed.

Andersen and his men were standing by the aft rocket gun. The heavy insurance wire was already flaked out ready for running, its inboard end taken not only around both pairs of bitts—these,

in a ship with self-tensioning winches, were rarely used for mooring, but there was always the possibility of a tow—but also around the poop house. The sisal messenger was coiled down handy to the line-throwing apparatus.

On the bridge, Grimes conned his ship. She was creeping along parallel to *Iron Warrior* now, at reduced speed. She was making too much leeway for Grimes' taste; unless he was careful there would be two wrecks instead of one. Too, with the swell broad on the beam, *Sonya Winneck* was rolling heavily, so much so that accurate shooting would be impossible. But the necessary maneuvers had been worked out in advance. At the right moment Grimes would come hard to port, presenting his stern to the *Iron Warrior*. Andersen would loose off his rocket, aiming for a point just abaft the break of the other ship's fo'c's'le head, where men were already standing by. They would grab the light nylon rocket line and use it to pull aboard the heavier messenger, using that to drag the end of the towing wire aboard and shackle it to the port anchor cable. After that, it would be clear sailing, Grimes hoped. He would come ahead slowly, take the weight gently, try to avoid the imposition of overmuch strain on either vessel. Slowly but surely he would pull the wounded *Warrior* away from the hostile fortifications.

Come off it, Grimes, he told himself sternly. *Don't be so bloody literary*.

"Hard aport," he ordered.

"Hard aport, sir." The clicking of the repeater was audible above the shrieking of the wind.

"Ease her. Midships. Steady. Steady as you go."

Sonya Winneck hung there, her stern a bare two cables from the side of *Iron Warrior*. He had cut that rather too close. But at this range it would be impossible for Andersen to miss.

To the Third Officer, at the radar, he called, "Are we opening the range?"

"Slowly, sir."

It was time that Andersen got his rocket away. The ship was not pitching too badly; firing at just the right moment should not be difficult. As long as the missile passed over the target it would be a successful shot. Grimes went out to the wing of the bridge to watch. The air-scoop dodger deflected the wind, throwing it up and over, so it was not too uncomfortable away from the wheelhouse.

Andersen fired—and at precisely the wrong moment the ship's head fell off heavily to starboard. The rocket streaked through the air, arching high, a brief orange flare against the gray, ragged

clouds, a streamer of white smoke and behind it the fluorescent yellow filament of the nylon line. Inevitably it missed, splashing to the sea well forward of and beyond *Iron Warrior's* bows.

Grimes didn't see it drop. He stormed into the wheelhouse, bawled at the helmsman, "What the hell do you think you're playing at?"

"It's the wheel, sir." The man's voice was frightened. "It turned in my hands. I can't budge it!"

The ship was coming around still, turning all the time to starboard. The gale-force wind and her own engines were driving her down on to the helpless *Warrior*.

"Stop her!" ordered Grimes. "Full astern!"

Denham was still at the radar, so Wilcox jumped to the engine controls. He slammed the lever hard over to the after position. Still the ship was making headway—but, at last slowing. She stopped at last, her stem scant feet from *Iron Warrior's* exposed side. Grimes could see the white faces of her people as they stared at him—as they watched, in horrified disbelief, this rescuer turned assassin.

Sonya Winneck was backing away now, her stern coming up into the wind. She was backing away, but reluctantly.

Wilcox shouted, "Denham, come and give me a hand! I can't keep this bloody handle down!"

Grimes dragged his attention away from the ship he had so nearly rammed to what was happening on his own bridge. Both the Chief and Third Officers—and Wilcox was a big, strong man—were having to exert all their strength to keep the metal lever in its astern position. It was jerking, forcing itself up against their hands.

SONYA—who until now had been keeping well out of the way—grabbed him by the arm. "Tell the Chief to put the engine controls on manual!" she screamed. "I know what's happening!"

"What's happening?"

"No time now to tell you. Just put her on manual—and get Lecky up here!"

Grimes went to the telephone, rang down to the engineroom. "Manual control, your end, Mr. Jones," he ordered. "Keep her on full astern until I order otherwise. And send Miss Hales up to the bridge. At once."

Thankfully Wilcox and Denham released their painful grip on the bridge-control lever. The revolution indicator on the console still showed maximum stern power. Yet the distance between the two ships was fast diminishing.

From the VHF transceiver came a frightened voice, "What's happening, *Sonya Winneck?* What's happening?"

"Tell him," said Grimes to Denham, "that we're having trouble with our bridge controls. We'll get a line aboard as soon as we can."

Wilcox, watching the indicator, yelled, "She's stopped! The hellcat is coming ahead again!"

Sonya said urgently, "There's only one thing to do, John. Shut off the Purcell Navigator. *Iron Warrior* has P.N. against her name in the Registry—and she was built by Varley's." She turned to Mary Hales, who had just come on to the bridge. "Mary, switch off that bloody tin brain. Pull fuses or something—but kill it!"

The pretty little blonde was no longer so pretty. On one side of her head the hair was charred and frizzled and her smooth face was marred by an angry burn.

"We've been trying to," she gasped. "The Chief and I. It won't let us."

"She's coming astern again," announced Wilcox. "She's—no, she's stopped."

"Watch her, Mr. Wilcox," ordered Grimes. He ran with his wife and the Electrician to the house abaft the chartroom in which the Purcell Navigator lived. It squatted there sullenly on its four stumpy legs, the dials set around its spherical body glaring at them like eyes. From its underside ran armored cables, some thick and some thin; the one leading aft and down must be the main power supply; the ones leading into the wheelhouse and chartroom would be connected to various controls and navigational equipment. On the after bulkhead of the house were a switchboard and fuse box. Mary Hales went straight to this and put out her hand to the main switch. There was a sudden, intense violet flare, a sharp crackling, the tang of overheated metal. The girl staggered back, her blistered hands covering her eyes.

"That's what happened to the engineroom switchboard!" Mary wailed. "It's welded itself in the *On* position!"

Then, using language more seamanlike than ladylike, she threw herself at the fuse box. She was too late—but perhaps this was as well. Had she gotten the lid open she would have been blinded.

Still cursing softly, she grabbed a spanner from her belt. Her intention was obvious; she would unscrew the retaining nut that held the main supply lead firmly in its socket. But an invisible force yanked the tool out of her hand and threw it out of the room.

Grimes watched, helpless. Then he heard Sonya snarling, "Do something. *Do* something, damn you!"

She thrust an object into his right hand. He looked down at it. It was the big fire axe from its rack in

the chartroom. He got both hands about the haft and tried to swing up the head of the weapon, staggering as the magnetic fields which now were the machine's main defense tugged at it. But he lifted the axe somehow and brought it crashing down—to miss his own right foot by a millimeter. Again he raised the axe, straining with all his strength, and again struck at the thick cable. The ship lurched heavily, deflecting his aim—and, fantastically, the magnetic deflection brought the head back to its target. The armored cable writhed away from the blow, but not in time. The keen edge bit home in a coruscation of violet sparks. And Mary Hales, with a smaller axe that she had found somewhere, was chopping away, sobbing and cursing, and Sonya was jabbing with a heavy screwdriver at the thing's "eyes." And so, at last, it died.

AND so it died, damaged beyond its built-in powers of self-regeneration. Mary Hales made sure of that. Grimes was finally able to get a line aboard *Iron Warrior* and the *Warrior's* people got the towing wire shackled to their anchor cable. Slowly but surely the crippled ship was dragged to safety, away from the avidly waiting fangs and talons of Devlin's Islet, the rocky teeth and claws that, when the tow finally commenced, had been less than a half-mile distant.

The Purcell Navigator was dead and its last flares of energy had destroyed or damaged much more than itself. The gyrocompass and the autopilot were inoperative—but the ship had a magnetic compass and hand steering. Loran and radar were burned out; inertial navigator and echometer were beyond repair; even the Chernikeeff Log was useless. But Grimes was not worried. He had sextant, chronometer, ephemeris and tables—and the great navigators of Earth's past had circled their globe with much less in the way of equipment. In the extremely unlikely event of his not knowing where he was, he could always ask *Iron Warrior* for a fix—but he did not think that he would have to do so.

He did, however, urge the *Warrior* to put her own Purcell Navigator out of commission, explaining why in some detail. Then he went to the house abaft the chartroom where, under the direction of Mary Hales, Wilcox and his men were loosening the holding-down bolts and disconnecting the cables that had not already been cut. There might still be a flicker of life in the thing, some capability of self-repair. He watched happily as three brawny ratings lifted the spherical casing from the deck and staggered with it out of the door.

"What shall we do with it, sir?"

"Give it a buoyancy test," ordered Grimes. He followed the men to the side rail of the bridge and watched as they tipped it over. It sank without a trace.

GRIMES was relieved of his command in Longhaven, after the successful completion of the tow, and flown back to Steep Island, accompanied by Sonya. Neither he nor his wife felt very strong when they boarded the airship—the crews of both *Sonya Winneck* and *Iron Warrior* had united in laying on a farewell party more enthusiastic than restrained. Even so, old and tired as he was feeling, Grimes had insisted on seeing the airship's Captain in order to be assured that the craft was not fitted with a Purcell Navigator. Then he and his wife went to their cabin and collapsed into their bunks.

Steep Island, although not officially an airport, had a mooring mast, so a direct flight was possible. When the time came for Grimes and Sonya to disembark they were feeling better and, in fact, had been able to put the finishing touches to their report.

Captain Thornton, the havenmaster, welcomed them warmly, but was obviously anxious to hear what they had to tell him. In only minutes they were all seated in the Lookout and Thornton was listening intently as they talked.

When they were finished he smiled grimly. "This is good enough," he said. "I shall issue orders that those infernal machines are to be rendered inoperative in every ship fitted with them and that no more are to be put aboard any Aquarian vessel. Then we make arrangements to ship them all back to where they came from."

Grimes was surprised and said so.

Thornton laughed. "What you've said is what I've been saying, John, for months. But nobody listens to me. I'm just a reactionary old shellback. But you, sir, as well as being a well-known maritime historian, have also one foot at least in what to us is still the future. You're a Master Astronaut; you hold the rank of Commodore in the Space Navy of your Confederacy. They'll listen to you when they won't listen to me."

"It's Sonya they should listen to," Grimes said. "She's a spacewoman *and* an intelligence officer. She tied the loose ends together."

"But it was all so obvious," she said smugly. "Two yards—and two yards only—on this planet were licensed to install the Purcell Navigator—Varley's and the Carrington State Dockyard. Two—sororities? Yes, two sororities of ships, the Varley Sisterhood and the Carrington Sisterhood, each

hating the other. Limited intelligence—but somehow a strong, built-in spite and also a strong sense of self-preservation. That much, I think, was intended by those electronic geniuses on Elektra—and possibly more, but I'll come to that later.

"Anyhow, if a Carrington sister saw a chance of taking a swipe at a Varley sister without much risk of damage to herself—she'd take it. And vice versa. Hence all the collisions and all the minor berthing accidents. Now and again, of course, the sense of self-preservation worked to everybody's benefit." She smiled at her husband rather too sweetly. "I know of at least one bungled berthing where everything miraculously, came right in the end."

"But what's behind it all?" asked Thornton. "You're the Intelligence Officer. Is it, do you think, intentional on somebody's part?"

"I don't know, Tom. I'd have to snoop around on Elektra to find out—and I doubt if the Elektrans would let me. But try this idea on for size: what if the Elektrans want to make Aquarius absolutely dependent upon them?"

"It could be," mused Thornton. "It could be." He stood up, walked to the bookshelves, took out a book and opened it. It was Grimes' own *Times of Transition*. Thornton leafed through it to find the right place. He read aloud. " 'And so was engendered a most unseamanlike breed of navigator, competent enough technicians whose working tools were screwdrivers and voltmeters rather than sextants and chronometers. Of them it could never be said: *Every hair a ropeyarn, every fingernail a marlinespike, every drop of blood pure Stockholm tar.* They were servants to, rather than masters of, their machines and ever they were at the mercy of a single fuse . . .' " He shut the book with a slam. He said, "It can't happen here."

"Famous last words," scoffed Sonya, but her voice was serious.

"It mustn't happen here," said Grimes. ★

According to Hoyle

SEVEN STEPS TO THE SUN

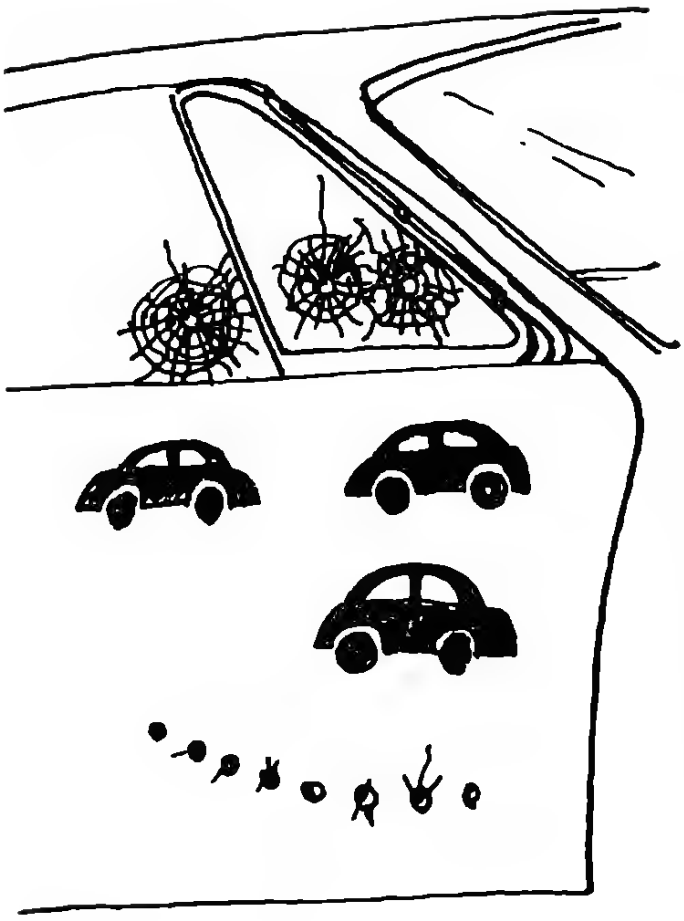
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WHY JOHNNY CAN'T SPEED

ALAN DEAN FOSTER

DEAR MR. AND MRS. MERWIN:

IT IS MY PAINFUL DUTY TO HAVE TO INFORM YOU THAT YOUR SON, ROBERT L. MERWIN, WAS KILLED IN COMMUTER ACTION ON THE SOUTHBOUND SAN DIEGO FREEWAY IN THE VICINITY OF THE SECOND IRVINE RANCH TURNOFF, ORANGE COUNTY.

FROM WHAT OUR EVALUATORS HAVE BEEN ABLE TO RECONSTRUCT, YOUNG ROBERT APPARENTLY DISPUTED A LANE CHANGE WITH A BLACK GM CADDY MARAUDER. NO VIOLATION OF THE NORTH AMERICAN TRAFFIC CODE HAS COME TO MY NOTICE, BUT I WILL KEEP YOU INFORMED SHOULD ANY SUCH COME TO LIGHT. NORMAL INVESTIGATIONS ARE PROCEEDING. THE OTHER VEHICLE INVOLVED IS KNOWN TO ORANGE COUNTY POLICE. ITS OWNER WAS QUESTIONED BUT NOT DETAINED. DETAILS AND PARTICULARS ARE ENCLOSED. PLEASE ACCEPT MY PERSONAL CONDOLENCES.

YOURS SINCERELY,
GEORGE WILSON ANGEL
CHIEF, SOUTHERN CALIFORNIA DIVISION
CALIFORNIA DISTRICT HIGHWAY PATROL
ENCL: 1 RPT, ACCID.
1 RPT. CORONER

FRANK MERWIN refolded the letter, replaced it in its envelope and laid it on the flange of the lamp stand, near the radio. He held his wife a little more tightly. Her sobbing had become less than hysterical, now that the terrible initial shock had somewhat worn. He managed to keep his own emotions pretty well in check, but then he had driven the Los Angeles area for some twenty years and was correspondingly toughened. When he finally spoke again there was as much bitterness in his voice as sorrow.

"Geez, Myrt, oh, geez."

He eased her down onto the big white couch, walked to the center of the room and paused there, hands clenching and unclenching, clasped behind his back. The woven patterns in the floor absorbed his attention.

"Goddamn it, Myrtle, I told him! I *told* him! 'Look, son, if you insist on driving all the way to Diego by yourself, at least take the Pontiac! Have some sense,' I told him! I don't know what's with the kids these days, hon. You'd think he'd listen to me just this once, wouldn't you? Me, who once drove all the way from Indianapolis to L.A. and was challanged only twice on the way—only *twice*, Myrt, but no, he hadda be a big shot! 'Listen Dad. This is something I've got to work out for myself. With my own car,' he tells me! I knew he'd have trouble in that VW. And I often told him so, too.

"But no, all he could think of to say was, 'Pops, the worst that can happen is I've gotta outmaneuver some other can, right? You've seen the way that bug corners, haven't you, huh? And if I get into a tough scrape, any other VW on the road is bound by oath to support me—in most actions anyway.'

"Whatta you tell a kid like that, Myrt? How do you get through to him?" His face registered utter bafflement. His wife's crying had slowed to a trickle. She was dabbing at her eyes with one of his old handkerchiefs.

"I don't know either, dear. I still don't understand why he had to drive down there. Why couldn't he have taken the Trans, Frank? Why?"

"Oh, you know why. What would his *friends* have said? 'Here's Bobby Merwin, too scared to drive his own rod,' and that sort of crud." His sarcasm was getting edgier. "Still felt he had to prove himself a man, the idiot! He'd already soloed on the freeways—why did he feel the need to try a cross-county expedition? But damn it, if he had to display his guts, why couldn't he have done so in the big car? Not even a professionally customized VW can mount much stuff.

"And on top of everything else, you'd think he'd have had the sense to shy off that kind of an argu-

ment? He had Driver's Training! Who ever heard of a VW disputing position with a Cad—a Marauder, no less! Where were his 'friends,' huh? I warned him about the light stretches between here and Diego, where flow is light, help is more than a hornblast away and some psycho can surprise you from behind an on-ramp!"

He paused to catch his breath, walked back to the lamp stand and picked up the letter. Familiar with the contents, he glanced at it only briefly this time. He offered it to his wife but she declined, so he returned it to the stand.

"You know what I have to do now, I suppose?"

She nodded, sniffling.

"Bob was taking that gift to a friend in Diego. I'm bound to see that it's delivered."

She looked up at him without much hope. She knew Frank.

"I don't suppose—"

He shook his head. His expression was gentle but firm.

"No, hon. I'm taking it down myself. I refuse to ship it and I certainly won't ride the Trans. Not after all these years. No, I'm going down the same way Bob went, by the same route. I'll have the J.J. tuned first, though."

She looked around dully, plucking fitfully at the delicate covering of the couch.

"I suppose you'll at least take it in to—"

"Hector? Certainly. In spite of what he charges he's damn well worth the money. Best mechanic around. I enjoy doing business with him. Know I'm getting my credit's worth, at least. We couldn't have me going somewhere else—now could we? Wouldn't want him to get the idea we're prejudiced or something. I've been going to him for, oh, five years. Almost forgotten what he is—"

"GOING all the way down to Diego, eh, Mr. Merwin?" said the wiry *chicano*. He was trying to rub some of the grease off his hands. The filthy rag he was using already appeared incapable of taking on any more of the tacky blue-black gunk.

"Yeah. So you'll understand, Hector, when I say the J.J.'s got to be in tiptop shape."

"Ciertamente! You want to open her up, please?"

Frank nodded and moved over to where the J.J. rested, just inside the rolled-up armor grille entrance to the big garage. He slid into the deep pile of the driver's bucket, flipped the three keys on the combination ignition, and then jabbed the hood release switch. As soon as the hood started up he climbed out, leaving the keys in the ON position. Hector was already bent over the car's power plant, staring intently into the works.

"Well, Mr. Merwin, from what I can see your engine at least is in excellent condition, yes, excellent! You want me to fill 'er up?"

Frank nodded wordlessly. He wasn't at all surprised at the mechanic's rapid inspection of the engine. After all, the J.J. had been given the best of professional care and the benefits of his own considerable work since he'd purchased her. Hector did not look up as he set about releasing the protective panels over the right-side .70 caliber.

"If I may ask, how do you plan to go?"

Frank had the big Meerschaum out and was tamping tobacco into it.

"Hmm. I'll go down Burbank to the San Diego Freeway and get on there. It'd be a little faster to get on the Ventura, but on a trip of this length that little bit of time saved would be negligible and I don't see the point in fighting the interchange."

Hector nodded approvingly. "Quite wise. You know, Mr. Merwin, you've got two pretty bad stretches on this trip. Very iffy. I read—about your son. I sorrow. The *jornada de la muerte* comes eventually to all of us."

Frank paused in lighting the pipe. "Couldn't be helped," he said tightly. "Bob didn't realize what was—what he was getting into, that's all. I blame myself, too, but what could I do? He was eighteen and by law there wasn't anything I could do to hold him back. He simply took on more than he could handle."

One of Hector's grease monks had wheeled over a bulky ammo cart. The mechanic waved the assistant off and proceeded about the loading himself. Frank appreciated the gesture.

"A Cad, wasn't it?"

"It was." He was leaning over the mechanic's shoulder, better to follow the loading process. Never could tell what you might have to do for yourself on the road. "What are you giving me? Explosive or armor-piercing?"

"Mixed." Hector slammed down the box-load cover to the heavy gun. It clicked shut, locked. He moved away to get a small, curved ladder, wheeled it back. At the top he began checking over the custom roof turret. "Both, alternating sequence. True, it's more expensive, but after all your son's car was destroyed by a Marauder. A black one?"

"Yes, that's right," said Frank, only mildly surprised. "How'd you find out?"

"Oh, among the trade the word gets passed along. I know of this particular vehicle, I believe. Owner does a lot of his own work, I understand. That's tough to tangle with, Mr. Merwin. Might you be thinking of—"

Frank shrugged, looked the other way. "Never know who you'll

bump into on the roads these days, Hector. I've never been one to run from a dogfight."

"I did not mean to imply that you would. We all know your driver's combat record, Mr. Merwin. There are not all that many aces living in the Valley."

He gestured meaningfully at the side of the car. Eleven silhouettes were imprinted there. Four mediums, four compacts—crazy people. Gutsy, but crazy. Two sports cars—kids—a jag and a Vet, as he recalled. He smiled in reminiscence. Speed wasn't *everything*. And one large gold stamping. He ran his hand over the impressions fondly. That big gold one, he'd gotten that baby on the legendary drive out from Indianapolis, back in 'eighty-three—no, 'eighty-two. The Imperial had been rough and, face it, he'd been lucky as hell, too young to know better. Ricochet shots were always against the odds, but hell, anyone could shoot at *tires!* So he'd thought twenty-odd years ago. Now he knew better—didn't he?

He wondered if Bob had tried something equally insane.

"Yes, well, you watch yourself, Mr. Merwin. A Marauder is bad news straight from the factory. Properly customized, it could mount enough stuff to take on a Greyhound busnought."

"Don't worry about me, Hector. I can take care of myself." He was checking the nylon sheathing on the rear tires. "Besides, the J.J. mounts a few surprises of her own!"

IT WAS already warm outside, even at five in the morning. The weather bureau had forecast a high of 101° for downtown L.A. He'd miss most of that, but even with air-control and climate-conditioning things could get hot. He turned on the climate-cool as he backed the blue sedan out of the garage, put it in drive and rolled toward the Burbank artery.

It was still too early for the real rush hour and he had little company on the feeder route as he moved past Van Nuys Boulevard toward the Sepulveda on-ramp. A Rambler at the light was slow in getting away at the change of signal. He blasted the horn once and the frantic driver of the heavily neutral-marked vehicle made haste to get out of his way. Theoretically all cars on the surface streets were equal. But some were more equal than others.

The Sepulveda on-ramp was an excellent one for entering the system for reasons other than merely being an easier way to pass through the Ventura interchange. Instead of sloping upward as most on-ramps did, it allowed the driver to descend a high hill. This enabled older cars to pick up a lot of valuable acceleration easily and also provided

the driver with an aerial overview of the traffic pattern below.

He passed the commuter carpark at the Kester Trans station. It was just beginning to fill as the more passive commuters parked their personal vehicles in favor of the public Trans. He felt a surge of contempt, the usual reaction of the independent motorist to milk-footed drivers wilfully abandoning their vehicular freedom for the crowding and crumpling of the mass-transit systems. What sort of person did it take, he wondered for the umpteenth time, to trade away his birthright for simple sardine-can safety? The country was definitely losing its backbone. He shook his head woefully as his practiced eye gauged the pattern shifting beneath him.

Mass Trans had required and still required a lot of money. One way in which the governments involved (meaning those of most industrial, developed nations) went about obtaining the necessary amounts was to cut back the expensive motorized forces needed to regulate the far-flung freeway systems. As the cutbacks increased it gradually became accepted custom among the remaining overworked patrols to allow drivers to settle their own disputes. This custom was finalized by the Supreme Court's handing down of the famous Brier vs. Matthews and the State of Texas decision of '79, in which it was ruled that all attempts to regulate interstate, nonstop highway systems were in direct violation of the First Amendment.

Any motorist who didn't feel up to potential arguments was provided a safe, quiet alternative means of transportation in the new Mass Trans systems, most of which ran down the center and sides of the familiar freeway routes, high above the frantic traffic. Benefits were immediate. Less pollution from even the fine turbine-steam-electric engines of the private autos, an end to many downtown parking problems in the big cities—and more. For the first time since their inception the freeways, even at rush hour, became negotiable at speeds close to those envisioned by their builders. And psychiatrists began to advise driving as excellent therapy for persons afflicted with violent or even homicidal instincts.

There were a few—un-American dirty commie pinko symps, no doubt—who decried the resultant proliferation of "argumentative" devices among high-powered autos. Some laughable folk even talked of an "arms" race among automakers. German cars made their biggest incursions into foreign markets in decades. Armor plating, bulletproof glassalloy, certain weaponry—how else did those nuts expect

a decent man to Drive with Confidence?

He gunned the engine and the supercharged sedan roared down the on-ramp, gathering unnecessary but impressive momentum as it went. Frank had always believed in an aggressive entrance. *Let 'em know where you stand right away or they'll ride all over you.* The tactic was hardly needed in this instance—there were only two other cars in his entrance pattern, both in the far two lanes.

He switched slowly until he was behind them, looking into rear and side view mirror carefully for fast-approaching others. The lanes behind were clear and he had no trouble attaining the fourth lane of the five. Safer here. Plenty of room for feisty types to pass on either side and he could still maintain a decent speed without competing with dragsters. He pushed the J.J. up to an easy seventy-five miles per, settled back for the long drive.

HE SPOTTED only two wrecks as he sped smoothly through the Sepulveda pass—about normal for this early in the day. The helicrane crew were probably in the process of changing shifts, so these wrecks would lie a bit longer than at other, busier times of day.

His first view of action came as he approached the busy Wilshire on-ramps. Two compacts squared off awkwardly. The slow lane was occupied by a four-door Toyota. A Honda coupe, puffing mightily to build speed up the on-grade, came off the ramp at a bad position. It required one or the other to slow for a successful entrance and the sedan, having superior position, understandably refused to be the one. Instead of taking the quiet course, the Honda maintained its original approach speed and fired an unannounced broadside from its small—.25 cal., Frank judged—window-mounted swivel gun. The sedan swerved crazily for a moment as its driver, startled, lost control for a few seconds. Then it straightened out and regained its former attitude. Frank and the cars behind him slowed to give the combatants plenty of lane space in which to operate.

The armor glass was taking the attack and the sedan began to return fire—about equal, standard factory equipment, he guessed. They were already reaching the end of the entrance lane. Desperately, refusing to concede the match, the coupe cut sharply at the nose of the sedan. The sedan's owner swerved easily into the second lane and then cut tightly back. At this angle his starboard gun bore directly on the coupe. A loud bang heralded a shattered tire. With a short, almost slow-motion bump, the coupe hit the guard rail and flipped over out of

sight. In his rear-view mirror Frank could just make out the first few wisps of smoke as he shot past the spot.

Now that the fight was over, Frank floored the accelerator again, throwing the victorious driver a fast salute. It was returned gracefully. Considering his limited stuff, the fellow had done very well. He'd handled that figure C with ease, but the maneuver would have been useless against a larger car. Frank's own, for example. Still, compact drivers were a special breed and often made up for their lack of power, engine and fire in sheer guts. He still watched *Don Railman and his Supersub* religiously on the early Sunday Tele, even though the ratings were down badly from last season. He'd also never forget that time when a *Weekly Caripper's Telemanual* with old Ev Kelly had done a special on some hand-tooled Mighty Mite, low bore, cut down, with the Webcor anti-tank gun cleverly concealed in the front trunk. No, it paid not to take the compacts, even the subs, too lightly.

He passed the Santa Monica interchange without trouble. In fact, the only thing resembling a confrontation he had on the whole L.A. portion of the drive occurred a few minutes later as he swept past the Los Angeles Sub-International Airport rampings.

A new Vet, all shiny and gold, blasted up behind him. It stayed there, tailgating. That in itself was a fighting provocation. He could see the driver clearly—a young girl, probably in her late teens. About Bob's age, he thought tightly. No doubt Daddy dear had bought the bomb for her. She honked at him sharply, insistently. He ignored her. She could pass him to either side with ease. Instead she fired a low burst of tracers across his rear deck. When he resolutely continued to ignore her she pouted, then pulled alongside. Giggling, she drew him an obscene gesture which even his not-so-archaic mind could identify. He jerked hard on the wheel, then back. Her haughty expression disappeared instantly, to be replaced by one of fright. When she saw it was merely a feint on his part, she smiled again, although much less arrogantly, and shot ahead at a good hundred miles per.

Stupid kid better watch her manners, never live to make 20,000 miles. Maybe he should have given her a lesson, burnt off a tire, perhaps. Oh, well. He had a long way to drive. Let someone else play teacher.

He became quiet and watchful as he left Santa Ana and entered the Irvine area. There was little commuter traffic here and only a few harmless beachers this early in the day. He saw only one car in the Cad's class and that was an

old yellow Thunderhood. Wasn't sure whether or not to be disappointed or relieved as he pulled into the San Clemente rest stop for breakfast. He could have eaten at home but preferred to slip out without waking Myrtle. He'd have a couple of eggs, some toast and jam and enjoy a view of the Pacific along with his coffee despite the low clouds which had been rolling in for the last twenty minutes. He hoped it wouldn't rain, even though rain would cut the heat. Weather was one reason he always avoided the safer but longer desert routes. Thundershowers inland were forecast and even the best tactical driver could be outmatched in a heavy downpour. He preferred to be in a situation where his talents could operate without complications wished on him by nature.

A few warm drops, fat and heavy, hit him as he left the diner. It had grown much darker and the humidity was fierce. Still, Irvine was behind him now. Best to make speed down to Diego and get home before dark.

He had only the well-policed Camp Pendleton lanes ahead and then the near-deserted Oceanside to La Jolla run before he'd hit any real traffic again. Contrary to early predictions, the California population had spread inland instead of along the largely state-owned coast. If he'd had sense to buy that hundred acres near Mojave before the airport had gone in there . . .

On the left he could see the old Presidential Palace shining on its solitary hill. He waved nostalgically, then speeded up slightly as he approached the Pendleton cutoff.

The drizzle remained so light he didn't even bother with wipers. Pendleton was passed quickly and he had no reason to stop in Oceanside. Soon he was cruising among rolling, downy hills, mellow in the diffused sunlight. A few cattle were the only living creatures in evidence, along with a few big crows circling lazily overhead in the moist air. Once a cycle pack roared noisily past, long twenties damp with dew. Two tricycles headed up the front and rear of the pack, but the ugly snouts of their recoilless rifles were covered against a possible downpour. They took no notice of him, rumbling past at a solid ninety-five miles an hour. He had no wish to tangle with a gang, not in this empty territory. A good driver could knock out three or four of the big Harley-Davidsons and Yamaharas easily enough, but the highly maneuverable bikes could swarm over anything smaller than a bus or trailer with ease, magnifying the effect of their light weaponry.

Maybe he could buy some land out here. He gazed absently at the green-and-gold hills, devoid of

housing tracts and supermarkets. Not another Mojave, maybe, but still . . .

A sharp honking snapped his attention reflexively to his mirrors. He recognized the license of the big black coupe almost at the instant he identified the make and model. *You're south of your territory, fella,* he thought grimly. His hands clenched tightly on the wheel as he slid over one lane.

THE Cad pulled up beside him, preparatory to passing. He judged the moment precisely, then tripped a switch on his center console. The portside flamethrower erupted in a jet of orange flame. The Cad jerked like a singed kitten. Instantly Frank cut over to the far lane, putting as much distance as possible between him and the big car, staying slightly ahead of the other.

A long dark streak showed clearly on the coupe's front, a deep gash in the tire material. The Cad would have trouble if it tried any sharp moves in his direction now and Frank saw no problem in holding his present position. Now he could duck at the first offramp if need arose. He activated the roof turret, an expensive option, but one which had proven its worth time and again. Myrtle had opted for the big grenade launcher, but Frank and the GM salesman had convinced her that while showiness might be fine for impressing the neighbors, on the road it was performance that counted. The twin fifties in the turret commenced hammering away at the Cad, nicking big chips of armorglass and battle sheathing from its front.

Frank was feeling confident until a violent explosion rocked him nastily and forced him to throw emergency power to the steering. Frightened, he glanced over his shoulder. Thank God for the automatic sprinklers! The rear of the car above the left wheel was completely gone, as was most of the rear deck. Twisted, blackened metal and torn insulation smoked and groaned. A look at the Cad confirmed his worst fears and sent more sweat pouring down his shirt-collar. No wonder this Marauder had acquired such a reputation! In place of the standard heavy Cad machine guns, a Mark IV rocket launcher protruded from the rear trunk! Fortunately the shot had hit at a bad angle or he'd be missing a wheel and his ability to maneuver would have been drastically, perhaps fatally, reduced. He did an *S* just in time. Another rocket shrieked past his bumper.

The turret fifties were doing their job, but it was slow, too slow! Another rocket strike would finish him and now the Cad had its big guns going, too. He wished to hell he was in the cab of a big United

Truckers tractor-trailer, high above the concrete, with another driver and a gunner on the twin 60mm's. A crack appeared in his rear window as the Cad's guns concentrated their fire. He turned and twisted, accelerated and slowed, not daring to give his opponent another clear shot with those Mark IV's.

Chance time, Frank, baby. Remember Salt Lake City!

He cut hard left. The Cad cut right to get behind him. At the proper (yes, yes!) second he dropped an emergency switch.

The rear back-up lights dropped off the J.J.. At the same time a violent *crrumpp*! threw him forward so hard he could feel the cross-harness bite into his chest. Fighting desperately for control and cursing all the way, he slammed into the resilient center divider with a jolt that rattled his teeth, two wheels spinning crazily off the pavement, then cut all the way back across the five lanes. Fighting a busted something all the way, he managed to wrestle the battered sedan to a tired halt on the gravel shoulder.

Panting heavily, he undid the safety harness, staggered out of the car, bracing himself against the metal sides. Behind him, a quarter mile or so down the empty road, a thick plume of roiling black smoke billowed up from a pile of twisted metal, plastics and ceramics, all intertwined with bright orange flame. The big bad black Cad was quite finished. He took one step in its direction, then stopped, dizzied by the effort. No driver could survive that inferno. In his eagerness to get behind the sedan, the Cad's driver had shot over at least one, possibly both of the proximity mines Frank had released from where his backup lights had been. Maybe revenge was an outdated commodity today, but he still felt exhilarated. And Myrtle might complain initially but he knew damn well she'd be pleased inside.

He became aware of something wet trickling down his cheek, more than could have come from the sporadically dripping sky. His hand told him a piece of his left ear was missing. The blood was staining his good driving blouse. Absently he dabbed at the nick with a handkerchief. His rear glass must have gone at the last possible minute. A look confirmed it, showing two neat holes and a third questionable one in his rear window. Umm. He'd had closer calls before—and this one was worth it. At least there'd be one license plate to lay on Bob's grave.

He sighed. Better stop off in Carlsbad and get that ear taken care of. Damnation, if only that boy had paid some attention in Driver's Ed. Eighteen years old and he'd never learned what his old man had known for years.

Be Safe. Drive Offensively. ★

THE MOON CHILDREN

PART II



WHAT HAS GONE BEFORE

The Moon Children were born to the wives of three lunar explorers who had become mysteriously contaminated during an unscheduled moon landing in response to a light phenomenon.

NICK and KYRIE were born days apart, mentally precocious and aware of each other before they met—and of GUY before he was born some months later. Earth had had experience of the dangers of contact with alien biocosms—particularly those of Jupiter and Mercury—and the children were hated and feared. KYRIE and GUY were rejected even by their parents and all three were brought up under laboratory conditions under the aegis of COSMOS, an official body. Their immediate supervision was in the hands of Nick's parents, YURI MARKO and DR. CAROLINA CARTER.

By the age of seven NICK and KYRIE were matching wits with Earth's top scientists. NICK solved the mystery of the propulsion system used by Jovian delta-life—and traded his knowledge for some of the moon grit that had contaminated his father. The grit held an instant message for the children. It told them they were not children at all—and not human.

INIQUITY

IX

NICK and Kyrie worked all week with that great tetrahedron, while Guy slept. Nick failed to do much with it. Still convinced that it was incomplete, he got Marko to requisition the moon grit left in the vault, hoping that we could build the nexode yet another stage larger.

The joint committee released the grit with no delay and security brought it to the lab in six lead drums. Nick opened the drums one by one, dipping an anxious hand into each, and sank on the floor beside the last, sobbing like any child who has lost a special toy.

Something had changed the grit in the vault. All the crystals had lost their glassy hardness; some were already crumbling into soot-like powder. Nick wanted no more of them, but Marko and Carolina tried to learn what had happened. Their tests showed all the thorium gone, most of the gold fused into microscopic beads.

"Burned out," Marko summed up their results. "By what must be nuclear or partly nuclear reaction. The carbon residue is mostly graphite now, mixed with stable elements that must be fission products. I'd like to know what became of the energy released." He crushed a dead crystal in his palm, frowning at the dull black dust. "That energy could have exploded the canisters like bombs. All it did was overload the gold conductors. Even the fission products don't show any residual radiation. Where did it go?"

Nobody knew. Yet, somehow, the assembly of the nexode had exhausted all the crystals in the vault. Security was uptight about it, suspecting fraud or robbery, and the joint committee demanded a full report. Next day we questioned Nick.

At first he wouldn't talk. He seemed to be merely waiting outside the lab darkroom, where Kyrie was working alone with the nexode.

"You don't want me." He shrugged ruefully. "Ask Ky. Or Guy, maybe, when he wakes up. They can work the nexode. Somehow I can't get the knack of it. I don't know why."

"We've got to file a report," Marko persisted. "Tell us what you can."

Nick stared moodily at the darkroom door.

"The nexode's half machine," he said. We knew that all along. It runs on nuclear power. The units are like computers—though each crystal has more circuits than any computer on Earth. That's the part I nearly understand."

"The other part?"

"That's Kyrie's." His small bare feet shuffled uncomfortably, as

if the floor had gotten hot. "Something locks the units together. Something reaches out, sensing and spending energy. Something almost alive."

"Alive?" Marko whispered. "How?"

"If the nexode's like a computer," Nick said, "it's also like a brain. The circuits in both are pretty much the same. I think the nexode is a sort of interface between the energy we call physical and something else. Another spectrum."

"You think the missing energy disappeared through that interface?" Marko squinted doubtfully. "I mean, the missing power from that fissioned thorium?"

"Where else?" Nick's worried scowl gave him the look of a small old man. "The laws of nature stand, though our notions of them change. The nexode channels energy in unfamiliar ways—as the space snakes do. But it's nothing more than a device—"

He stopped abruptly and ran to meet Kyrie as she came out of the darkroom. She looked like a tired and troubled child again, with no sign of that vital power which had flowed into her from the new nexode. She took Nick's hand and they slipped away to stand for a while, watching Guy's deep sleep. When they came back, Marko stopped Kyrie to ask what she was doing with the nexode.

"It's—hard." Trouble shadowed her face. "The room has to be very dark and still, with nothing to distract me. I can't even think of anything except of the nexode shining. I just wait—and wait—and wait. Sometimes something comes."

"A message?"

"Bits of one." She glanced unhappily at Nick. "Maybe most of it is lost because the grit lay on the moon too long before anybody found it. Everything is dim and broken. But something—something tries to come while I sit there in the dark."

MARKO had more questions, but Nick asked us not to delay her any longer. Neither slept all that week. Kyrie sat hour after hour in the darkroom, while Nick waited at the door. Image by shadowy image, they put together a fragmentary picture. One breathless desert midnight, after Kyrie had taken her break and gone back to the darkroom, Nick decided to share it with us.

The day had been long and hot for me, with a suspicious security agent dogging me all afternoon with questions I couldn't answer about the affairs of my absent brother. I was longing for a quiet beer and bed until Nick spoke.

"Ky's getting the hang of the nexode now." Beneath his offhand tone, I heard a throb of veiled elation. "We're learning who made the grit—and finding a bit of

truth in our old baby games about our people in space and their tachyon ships." He grinned soberly. "I guess the grit did help me make them up."

"Your old theory was pretty good." He glanced at Marko with a new respect. "There *is* a great galactic culture. A sort of superbiocosm. All kinds of races with different biologies, united in one universal civilization. They're bound together with the cosmic altruism that Platon Papanek couldn't find on any of our planets—maybe it doesn't evolve very often.

"Anyhow, the messenger missiles that carry the grit were scattered like seed through space to spread that great culture—to find any new races evolved far enough to welcome it. The ships do travel faster than light. Ky can't say yet whether they're really tachyon craft, but she says they can't come here without a proper beacon to guide them and a proper terminal where they can land.

"That's our mission—to build that terminal!" His lean face shone. "The grit was waiting for our fathers on the moon. If it was seed, they were the soil and we are the young plants. The grit made us like we are. We are part of a great plan that begins somewhere among the stars. It can't end till the starships arrive on Earth."

We were still up at three o'clock, debating the vast implications of that, when Kyrie took another break. Sudden clouds had veiled the moon and we walked back to the nursery against a dry wind that smelled of brush and dust.

Kyrie stood over Guy, gently stroking his gray-furred face. Tears filled her eyes, when he moved and whined in his sleep. Her face looked pinched and bleak, with none of Nick's elation. He fixed her a tray when she came on to the kitchen, but she pushed it back untasted.

"What frets you, child?" Carolina asked. "Nick was so delighted with the message you were getting."

"But I'm afraid." She glanced anxiously at Nick. "Even if we get the terminal ready, I'm afraid our people will never come."

"But Nick says they promised—"

"A long time ago," Kyrie said. "When I'm reading the nexode, I forget how old the grit was. What it shows seems like *now*. But Nick says it lay on the moon sixty million years. He says it was old before men evolved on Earth."

"Is that so bad?"

She looked uncomfortably at Nick.

"Ky's a worryworm." He made a face and gave her a playful push, but she refused to smile. "I thought she knew more about the grit. Now she's afraid our people won't know us after sixty million years."

She nodded unhappily.

"Maybe they won't." Nick's own face turned sober. "It is a long time. Perhaps they're dead by now. Perhaps they've evolved so far they won't care about us. Perhaps they've forgotten all about scattering the messenger missiles. Anyhow, no matter what, we've got to build the beacon and the terminal. That's why we're alive."

"We must try," she whispered. "But I'm so afraid."

She reached for Nick to take her hand. They were trudging back through the dark toward the lab as we went off to bed.

GUY woke at noon next day. As slow and bearlike as if he had never touched the grit, he opened my office door and peered vacantly inside, whining Kyrie's name. I called Carolina and we tried to distract him, but he wouldn't eat and he wouldn't come with me to the gym

He shambled back to Kyrie's empty room and prowled the nursery hall until he came to the kitchen. There he found the chair where she had sat. He snatched it up to sniff at it and blundered out of the room, moaning and twitching, stooping to scan the floor as if his yellow eyes could trace her footprints.

He paused outside as if to sniff the wind and ran lumbering toward the lab. We saw Nick dart out to stop him, as shrill and ineffectual as a small dog trying to intercept a charging bear.

"Wait! Please! Ky's at work—"

Guy crumpled Nick with one careless slap and drove on through the doorway. Nick was flat on the concrete walk when we came up, a green fly buzzing around his head. Naked to the blazing sun, his pale body had failed to tan.

Carolina gathered him into her arms. I ran past them into the lab. Guy had stopped in the hall, shaking his head and peering about as if the decayed-hay reek of Carolina's beta cultures had washed out Kyrie's scent. His gray ears lifted searchingly. He turned, crouched and suddenly froze.

"Hold it, Guy—"

He ignored me. Somehow he had located Kyrie. His spread ears quivered. He plunged abruptly past me, toward the darkroom. I was close behind when he reached the door. Without pausing to try the knob, he went through it like a tank.

I followed him in, stumbling over the broken door. The rose-colored glow of the nexode was all I could see for a moment. Pushing into the dark, I found Kyrie's golden form. She sat on a high stool, staring into the great tetrahedron as if unaware of Guy.

Whining like a starving beast, he snatched it out of her cupped hands. The stool tipped over with a crash, but she came down on bare

cat feet. For a moment she stared up at him, the gold fading fast from her stricken face.

"Baby Guy!" she whispered. "What have you done?" She caught at his furry arm, her voice tremulous with terror. "What have you done to Nick?"

Guy swayed back and forth, clutching the rose pyramid in both gray paws. Peering into it, his eyes grew huge and dull, soot-black and yellow-rimmed. His breath became a heavy rasping.

"Guy, Guy!" she sobbed. "You've hurt little Nicky!"

She darted out, but I stayed to watch Guy with the nexode. His slow paws turned it. His blank eyes blinked at it. He bent to lick its shimmering faces with a pink, dripping tongue. At last he cocked a furry ear to listen while he shook it, like some bewildered savage with a clock.

Waiting for the glowing pyramid to transform him again, I saw no change. When he put it together, he must have served only as a temporary tool, energized for that special purpose. The task accomplished, he was not energized again.

Instead, he ran down now. His noisy breath grew quiet. His frantic movements slowed. He stood swaying, staring dimly at the pyramid. Slow tears traced black streaks in his fur. At last he shook his head and shambled away. I followed him over the splintered door and out of the building.

Outside, the blaze of sun hurt my eyes. Carolina stood swinging back and forth, crooning softly, rocking Nick in her arms. His thin arms hung limp and the green fly still droned around his head. Kyrie was hovering over him, brushing at the fly, but she turned to face Guy with a look of sick accusation.

"You're bad," she gasped. "You—beast!"

With a roar of sudden fury Guy threw the nexode at them. It might have struck Nick, but Carolina swung him out of the way. It grazed her arm with one keen point and spun across the lawn. With a cry almost of pain Kyrie darted to pick it up.

Trembling and sobbing, Guy shuffled after her. Turning her stricken face from him, she slipped around him and brought the nexode back to Nick. With a howl like a tortured animal's Guy swung abruptly away. Staggering blindly, he tripped over the curb, picked himself up and reeled out of sight behind the gym. His agonized bellows thinned and faded away.

X

BY THAT time a security car had arrived. Nick's thin limbs hung floppily as Carolina laid him on the rear seat, but I saw a faint color beginning to spread where the sun

had washed his body. She examined him back at the nursery, while we waited breathlessly.

"He's coming around." She gave Kyrie a comforting smile and turned to me more gravely. "Better see about Guy."

The security men had reported Guy running toward the open mesa. We followed in the car. He was far ahead when we saw him, a wild gray animal loping into a shimmering blue mirage. Bounding over boulders and juniper clumps, he almost outran us.

"Wait, Guy! Listen!"

I leaned from the jolting car to call when we were near enough, but he didn't stop. Instead he swerved abruptly to attack an isolated clump of tall cactus. He dived into it, butting and slugging and kicking the spiny masses, finally embracing them, howling with self-inflicted pain.

His wild cries choked and died. He was asleep or unconscious when we reached him, lying flat beneath the thorny plant he had pulled down upon him. His arms and legs were locked around it, bristling with broken spines. His gray jaws were fixed upon a flaming purple bloom. All movement had ceased, but his barnyard scent hung in the heated air, stronger than any odor from the flowers.

We waited for an ambulance to take him back to the station hospital. Needing no anesthetic, he lay three hours on the operating table while the spines were removed. No sign of life appeared until Nick and Kyrie came to see him later, in his room.

They stood beside his bed until he moved and made some stifled sound. Kyrie reached to stroke his arm. His eyes came open then, yellow and empty, the pupils contracting at once to expressionless points.

"Guy!" Kyrie sobbed. "Dear Guy!"

His flat head turned. His gray ears rose and fell. His vacant eyes passed over her and Nick, without interest or even recognition. A dull growl came out of his throat. In a moment he sank laxly back, asleep again.

Kyrie crumpled into a quivering little heap and we had to carry her out of the room. Nick came with her to the nursery. He sat beside her all night. If he ever urged her to return to her work with the nexode, I didn't hear him, but she was back in the darkroom next day, behind a new door.

Guy slept most of the time for many months. His body shrank to knobby bones and shabby fur. His illness and regression puzzled me. Building the nexode, Marko suggested, had somehow used him up. The loss of the precious pyramid, Carolina thought, had left him with a psychic trauma. I wondered if losing Kyrie had not hurt him more.

WHEN he began to recover—later during the winter—he wanted me with him. He used to lie watching me, hour after hour, with a dumb devotion. He liked to rub his fur against me and whined with delight when I scratched behind his ears.

Though Nick and Kyrie came several times to see him, he seemed not to know them. Kyrie brought the nexode once and held it toward him hopefully. His yellow eyes glanced blankly at it, drifted indifferently away. Kyrie was stricken and Nick begged her not to come back.

With Caolina's help I taught Guy to speak again. We played with his educational toys and went to the gym and swam together. With food and exercise he slowly regained his lost vigor and suddenly began to grow again. By summer he was twice my weight.

An odd sense of humor came with his returning awareness. He used his physical power to tease me, letting me nearly win a tennis game or even a wrestling match before he beat me or pinned me down. He played alarming practical jokes on the security men.

He found other interests, besides. One was a dark sturdy girl who had been hired to wash glassware in the exobiology lab. The name on her security badge was Veronica Geronimo. She claimed the famous Apache raider for an ancestor, though security later informed me that she came from the Bronx.

We saw no probable harm in this affair. Apache or not, Veronica looked competent to protect herself even from Guy's rather alarming sex equipment. Marko thought Guy needed an emotional outlet and Carolina seemed reluctant to inhibit the basic behavioral responses of a unique biological specimen.

I wasn't much surprised when Veronica disappeared—Guy must have been a problem lover. But he was bewildered and dismayed. He wanted me to help him find her. When I went to security I learned that she had been thrown off the mesa for peddling marijuana without a federal license.

Guy's distress produced a new crop of clinical symptoms for Carolina to record. For the first time in his life he couldn't sleep. His fur lost color. His ammoniac odor grew sharper. He began breaking up furniture, absently twisting and snapping a lamp or a chair into fragments before he saw what he was doing.

He hadn't learned to read and one day he brought me a note smuggled in by a cafeteria worker. The tinted paper reeked of cheap perfume. Veronica still loved her Papa Bear. She had lost her badge and couldn't come to see him, but she was working at the Thunderbird Bar, out on the Albuquerque

road. She had a room at the Starways Flytel, if her Papa Bear remembered his teeny weeny Goldilocks.

I tried to decline when Guy wanted me to come with him to the security office, but he carried me there on his shoulder. The security men snorted with indignant scorn when he asked permission to visit Miss Geronimo. Though they were not explicit, they seemed to feel that any union between Guy and a human girl would be wickedly unnatural.

The acting chief did say he'd be damned if he compromised security just to coddle a hairy halfman. He refused Guy's request and assigned special guards to keep him on the mesa.

Escorting us back to the nursery, those new guards wanted to know where Guy's girl was shacking up, but he was more astute than I expected. Assuming a blank idiocy, he managed not to mention the Thunderbird Bar or the Starways Flytel.

In spite of security he left the mesa that night. How he went was never entirely clear. The guards put him to bed in a windowless room and stood their watch outside. Next morning they found a hole in the wall and an empty bed.

We were frightened for Guy. With his nonhuman look, he would be in danger everywhere. Though the government was suppressing news of the space invasion, facts enough were leaking out to kindle an anti-alien hysteria.

Carolina had kept us informed of what she knew about the invasion, which was enough to upset us all. As a distinguished exobiologist, she was on a special list to receive the classified reports. Low-ranking officials were streaming to Skygate to consult her about the dangers from space and she was often called away to advise those higher up. Even she was perplexed and disturbed.

The Earth platform had begun reporting anomalous fogs at sea. Shallow but oddly dense, they occurred unpredictably at points which made nonsense of the official theory that they were due to unexpected shifts in the cold ocean currents. Several fishing vessels were reported lost in them before the censors closed the lid on such unsettling facts.

The news about the flying snakes was equally disturbing. Following our rockets home, those remarkable space creatures had explored the moon and investigated the Earth platform and had now begun diving into our own atmosphere.

When their appearances became too frequent for the censors to deny them entirely, COSMOS released an official opinion that they meant no harm. Perhaps that was true. Certainly they seemed more playful than hostile, although their intentions were

never quite clear. They were evidently interested in human activities and obviously attracted to heat—like Nick's flying plank, they somehow converted thermal energy into motion. They began diving out of space to escort our aircraft, as dolphins used to escort ships. Whatever their motives, the results were unfortunate. Drained of heat and power, the escorted aircraft often crashed.

The word "otheron" had begun to spread that year on the waves of secrecy and rumor and unconvincing denial. It denoted anything from another biocosm, moon child or space snake, cultured beta-form or imagined invader. Guy was an otheron, and we were concerned for his life.

HE WAS gone two months. His disappearance was never widely advertised—for fear on the part of those concerned of touching off a panic—but Skygate security did organize an intensive secret search. Marko and I made several fruitless trips, following clues of our own and notions of Kyrie's, but Guy wasn't easy to find.

Our knowledge of his first seven weeks of freedom became mostly inference drawn from a trivee series screened the following year. Veronica Geronimo was the narrator of *I Loved A Monster*, and her lurid drama must have been at least partly true. Later I saw Guy himself watching the program, chuckling silently. He confirmed a few details for me, though he would never talk to security.

It seems that he and Veronica covered most of North America, living and traveling in a series of rented or perhaps stolen helicabins. To the confusion of security, it developed that Guy himself had been on trivee half a dozen times during the manhunt.

Disguised in tiger-skin shorts and stripes painted on his own fur, billed as Monk Tigerhide, he had competed as a professional wrestler, dutifully winning or losing as Veronica and her friends desired, until he had inadvertently damaged too many opponents.

In ways never revealed to Internal Revenue, the two had collected a considerable fortune. Tax officials intercepted Veronica as she attempted to leave the country the following year with nearly six and a half million in unexplained World Bank globals.

Abruptly, on the helistage of the Manhattan Hudson, that grotesque comedy had turned into disaster. Veronica must have been wearing too many jewels. A team of burglars broke into the helicabin. Guy collared one of them, but the other got away. He had seen Guy nude and he spread the news of a Moon Kid in town.

With her own sure instinct for survival Veronica escaped. The

captured burglar seems to have gone along, replacing Guy as her consort. Guy himself was left to face the mob, naked and alone. Fighting bare-handed, he threw four men off the helistage and hurt a dozen others, but he was finally overcome.

Left for dead, if too tough to be dismembered, he was picked up by the riot police and finally sent back to Skygate nailed up in a guarded box. Though his odor was overwhelming when we opened it, Carolina decided that he was still alive. The space doctors disagreed, but she made them let her keep him in a hospital room. After long weeks of something between death and sleep, he sat up to beg for a steak.

XI

CAROLINA was gone three months from Skygate the next fall, on an unexplained assignment. Busy with security officials the day she returned, Marko asked me to meet her plane. She looked so tired and troubled that I asked what was wrong. She said nothing till we were alone in the car.

"It's the fog," she told me then.

Anxious to know more, but diffident about prying into confidential matters, I drove on without comment. She frowned, hesitated.

"Don't talk about it," she said at last. "But the government is getting the jitters. I was called in to lead a secret research group. Our instructions were to learn what the fog is and what to do about it." She drew a weary breath. "I'm afraid our report won't cure any jitters."

Again I waited while she stared at the desert moodily and as if each twisted juniper had been some kind of space alien in disguise. When I had to brake and swerve to avoid a speeding security airtrac, she looked absently back at me.

"We tried." The flatness of her tone added that they had also failed. "The military called for an all-out effort. They gave us all the people and equipment we asked for and all the data anybody has. We tried everything. Mapped the fog. Photographed what we could. Tested the fog for every sort of radiation. Dropped telemetered instruments into them with rockets and parachutes. Towed scoops from aircraft to collect samples. Questioned every surviving observer and every crackpot with a theory."

"And what is the fog?"

"We still don't know. The photographs show mostly splotches of featureless white. The radiometers found nothing unusual. The telemetry never worked. The surface samples weren't much more than a bad odor by the time we got them back to the lab. We got no deep samples

at all—something caught the scoops and broke the lines. Don't ask me what." Her somber eyes swept me blankly and drifted back to the desert. "The military isn't very happy about it, but those negative results make up the main content of our report. We were asked to draw conclusions, but nobody liked our ideas. If you want to hear them—"

I said I did.

"I think the fog is a manifestation of life. Life from another biocosm—which one, I can't say. The surface samples died and decayed too fast to tell us much, but the evidence indicates to me that the surface layer is made of tiny bubble-shaped organisms, probably inflated with hydrogen. They're hygroscopic and very fragile. Dryness kills them."

I asked about the deeper layers.

"Nobody knows what's underneath." Her uneasy voice sank until I could barely hear it. "But it must be something more than microscopic. Something strong enough to snap our scoops off the lines. Something hostile enough to seize every ship the fog overtakes. Something cunning enough to outwit all of us."

"You mean—intelligent?"

"Call it whatever you want." I saw her shiver. "It unnerved us. The fog spreads in the dark. It has been reported creeping up on ships and isolated beaches in a way that looks deliberate. It does retreat from the light—I think sunlight dries and kills those microscopic balloon cells. When the fog goes, nothing alive is left behind. Just a red, stinking slime."

She sat for a moment in foreboding silence.

"Another item," she added suddenly. "The fog doesn't like investigation. During daylight it retreated from our parachuted instruments and even from a surface laboratory ship—which it later overtook in the dark. Every patch of fog that we tried to study melted rapidly back into the sea."

She brightened eagerly as we came in view of the nursery building.

"That's about it," she said. "If you want to know what the fog really is, all I have is the theory we cooked up for our report. The phenomenon is clearly an intrusion from some other biocosm. Wherever they evolved, the intruders have been changed—by mutation or more likely by metamorphosis—to adapt them for survival in the oceans of earth."

"Why are they invading?"

"Let's get on to a more cheerful topic." She cut me off firmly. "How are Nick and Kyrie?"

WE FOUND them hard at work on their plans for the transgalactic terminal. In spite of all our warnings, they were determined that COSMOS could be persuaded to build it.

Kyrie spent most of her days and nights shut up alone in the darkroom with the tetrahedron, groping for the bits and pieces of its half-erased message. Nick's drafting table was the floor of a room across the hall. He worked lying flat, often calling Kyrie in so that he could show her the emerging difficulties and tell her what to search for.

The following summer, as those problems began taking clearer shapes, Marko helped select a team of specialists to write the specifications and prepare the final drawings for COSMOS. Most of these experts had been with the famous "triple E"—Ex-Earth Engineers—the prime contractor for the seeker vehicles and several planet platforms. Accustomed as they were to vast space projects, they were dazed by the dimensions Nick demanded for the tachyon terminal.

After ten days of nonstop talks with Nick, they invited Marko and me to join a conference at the Skygate Hudson. Kyrie stayed behind in the darkroom, trying to fill some gap in the record. Nick sat between Marko and me at the long table, facing the engineers. In blue trunks, pale and naked to the waist, he looked perilously young and small and vulnerable.

The seven engineers were sober and mature veterans of space, armed with rolled blueprints and entrenched behind portable computers and thick stacks of data. They shuffled their documents and scowled at Nick, waiting for their spokesman to begin. He was Ken McAble, a wiry, brown and dynamic Yankee who had tested his own hardware in orbit around several planets.

"I'll tell you why we're here." His ice-green eyes shifted uneasily from Nick to Marko and then to me. "We've got plenty of space know-how." He nodded approvingly at his fellow engineers, three on either side. "We've done some difficult things. I think we're competent to say what is feasible and what is not. I believe we all agree that this so-called tachyon terminal is just not possible."

The men around him nodded solemnly.

"But it can be," Nick objected sharply. "It has to be."

"Just look at it." McAble fumbled through a stack of papers and held up a sketch of the terminal—the six outer towers with their landing stages rising like a spiral stair around the taller central beacon.

"Ten miles tall." He pursed his lips and shook his head. "Equipped to dock and refit tachyon ships with diameters up to half a mile. The machinery works on principles we never heard of and the specifications call for materials unknown on Earth."

"Please, sir?" White and trembling, Nick stood up in his chair. "We'll explain the principles. We'll all tell you how to make the new materials."

"Look at these dimensions." McAble waved his sketch. "They reduce the Great Pyramid to a wart. Our preliminary estimates are still pretty rough, but they run to something like three point seven billion tons—of structural materials we don't have names for."

"WE KNOW it won't be easy, sir." Nick spoke too fast, as he often did when he was too gravely worried to remember the slow comprehension of ordinary men. "That's why we're asking COSMOS to take it over. All the nations must unite—"

"COSMOS!" McAble snorted. "COSMOS is already stinking dead. Its builders mistook the other planets for a free lunch. Now it looks like we're going to be the free lunch for all the other biocosms."

"But, sir! This trouble with the other biocosms is exactly why the terminal has to be built. The messenger missile was sent to prepare us for this very moment—when space flight is just beginning. Don't you see? Don't any of you see?"

Nick caught his breath and looked desperately along the line of doubtful faces.

"New biocosms need help to understand each other. The terminal beacon can bring that help—but we must have it soon. Without it, our own biocosms will probably kill one another. Can't you see that, sir? Building the terminal, we're running a race to save the lives of Earth and Venus and all our other neighbors. Don't you—don't you see—"

His forlorn voice slowed and stopped. I could hear a muffled clatter from the dining room. The sluggish air felt too cold and smelled faintly of fish. Nick gulped hard. I thought he was going to cry.

A pencil dropped and rolled. Two fattish engineers whispered together and one of them passed a paper to McAble. He squinted at it, cleared his throat and scowled at Nick again.

"We do have one suggestion that might be productive," he said. "If you care to consider it."

"Yes, sir!" Nick gasped. "Of course."

"It has occurred to several of us that these plans are far too elaborate." He tapped his sketch and nodded at the fattish engineers. "This terminal we're talking about would dock a whole fleet of starships. It seems to us that we might begin with simpler facilities for just one ship. Can't you modify the plans?"

"I wish I could." Nick shrugged unhappily. "The terminal is large

on our scale, but not on the cosmic scale. The stars are far apart. A tachyon beacon has to have a certain power to reach ships or other terminals at all. A weaker beacon would be no good. Anyhow, we can't change the plans."

"And why not?"

"You see, sir, we're not designing anything ourselves. We don't know enough. We're only reading out the specifications recorded in the messenger missile sixty millions years ago—and now partly lost."

"I think they should have been simpler in the first place."

"I'm afraid you don't understand, sir. There are too many billions of planets. Too many life forms always evolving—but too few that ever need or want to join the great galactic culture. The starships can't visit them all. Only those that build a terminal are considered worth an interstellar trip. It's how we qualify for transgalactic membership."

McAble frowned at that and finally turned the meeting over to his fellow engineers. They began asking technical questions about structural materials for the towers, about the operation of the beacon, about tachyon propulsion and the minimum-energy shift to the tachyon state. Nick's answers were confusing to me and also, I think, to them.

Marko sent out for coffee and, later, for sandwiches. With an afternoon break to let Nick assemble and demonstrate a second flying plank, the meeting lasted all day. Four of the engineers left Skygate that night, but McAble and two others decided to stay— "Just for the hell of it—" McAble said. They worked for nearly a year with Nick and Kyrie, producing machines they never really understood.

WHEN their proposal was finally ready for COSMOS the presentation had to be delayed because a jet carrying most of the European directors had been lost over the Atlantic. Official censorship veiled the details, but one survivor who had missed the flight turned up later to tell us that friendly space snakes had flown too near the plane, killing the motors and forcing it down into a patch of that anomalous fog.

Other members canceled out, until only the American and Sino-Soviet delegations came for the final presentation. The American group was headed by Erik Thorsen. Marko and I called on him the day he arrived at his official residence.

I barely recognized him. He was an old man now, stooped and slow, his face sternly tragic. His bloodless hands had a ceaseless tremor. I suppose the psychiatry had been successful, but I felt sorry for him. He greeted us stiffly and waited to see what we wanted. He didn't ask

about the children, Suzie or anybody else.

We tried to brief him for Nick's presentation. He listened silently, gray lips compressed, now and then shaking his cadaverous head. When we had finished he promised curtly to see us at the meeting, but I could see that he didn't mean to be convinced.

WE MET the next day in the tarnished splendor of the Hall of Worlds, built when the great dreams of COSMOS were still alive. Clustered around the podium, our little group left the long chambers nearly empty and rolling echoes seemed to mock our fading hopes.

Maxim Petrov came in at the head of the Sino-Soviets. A vigorous thick-set man, he shook hands cordially with all his old friends and smiled with a startled admiration at Kyrie when she and Nick came in.

One of his advisers surprised us more. A short, stout, brown man with thick untidy hair and dark sunglasses, he had arrived on Petrov's plane and spent the night in the Sino-Soviet residence. When he took off the glasses I recognized my brother Tom.

Less cordial than Petrov, he waved a pudgy hand at Marko and me, lighted a long yellow narcorette and put on another pair of glasses to study our terminal plans.

After all our preparation, that meeting was a brief anticlimax. The delegates frowned over the bulky handouts. Kyrie displayed the tetrahedron. Nick explained the purpose of the messenger missile, then called on Ken McAble to brief the delegates on our proposal for the tachyon terminal.

"I came in as a skeptic," McAble began. "But I've been convinced. I'll grant that the task of erecting this terminal will tax the resources of the planet. But I think it can be done—and I say we've got to do it."

He raised his voice above a murmur of startled protest.

"The alternative is death. Alone, we can't cope with the other biocosms we have encountered on Venus and Mercury and elsewhere. We don't know how to deal with the space snakes now in our own atmosphere, or with whatever is moving into our seas."

Thorsen stood up, but McAble wouldn't stop.

"I believe the creatures of our neighbor biocosms have found it just as hard to understand or cope with us. The exobiologists are suggesting that we have gravely disturbed the ecology of Venus and I'm afraid we have given the other biocosms no reason to love us."

McAble still ignored Thorsen's quivering hand.

"Gentlemen, this is a turning point in the lives of our planets.

The terminal can bring us the means to understand and bridge our differences. It can open a door to all the benefits of the transgalactic civilization—wonders I don't dare imagine. Without the terminal, I think we're dead."

Recognized at last, speaking in an old man's slow falsetto. Thorsen said there were too many space aliens already on Earth. He didn't intend to import any more. The American delegation was voting to reject the proposal.

Maxim Petrov spoke longer and less vehemently. His technicians had discovered many items of exciting interest in the terminal plans, which would be carried back to Peking for additional study. He understood the grave hazards of contact between unaided biocosms and he recognized a growing danger to the life of Earth. If Nick's proposal had been made just a few years earlier, the Sino-Soviet might have been able to support the terminal project. Unfortunately, however, in his opinion the crucial turning point had now passed. Already under increasing pressure from space intruders and divided by growing suspicions that the moon children and perhaps other space aliens were secretly meddling in human affairs, the nations of Earth could never unite to erect it. Regretfully, therefore, the Sino-Soviet was forced to join the Americans in voting to kill the proposal. Moreoever, since the seeker surveys had failed to open up new living space for the human proletariat—or even to develop any important new industrial resources for the workers of Earth—the Sino-Soviet and its allies were giving notice of withdrawal from COSMOS. Formal claims would be filed for the assets and privileges properly due them under the charter.

Nick and Kyrie should have been prepared, of course, for such an outcome, but they had never learned to make reasonable allowances for the ignorance and stupidity of ordinary human beings. Shattered, they clung together, sobbing piteously. Marko and Carolina tried to console them, but they wouldn't talk to anybody.

XII

PETROV gathered his delegates to leave the Hall of Worlds. My brother burst out of the group and scuttled across to Thorsen, begging for political asylum. Thorsen called him a traitor and turned his back on him. Sweating and gasping, Tom dashed to Marko and me.

"Kim! My baby brother!" He enveloped me in a fleshy embrace and the rich aroma of his armpits. "And my old comrade—Yuri! It's grand to see you both."

Mark took his offered hand, somewhat hesitantly.

"I need your help," he wheezed. "But you need mine—just as much. I can help you—help you build that terminal."

"Help us?" Marko squinted at him skeptically. "How?"

"I've got contacts." His calculating eyes rolled toward the Sino-Soviets. "I've got influence. I've got know-how. I've got everything you need to get the project moving. And that's a fact. Trust me, Kim. You've just got to trust me, Yuri."

Of course we couldn't trust him, but I saw no harm in listening. We had very little to lose. Though I had learned to fear his slippery resourcefulness, I couldn't help yielding to his old shrewd charm.

"What know-how?" Marko was demanding. "Contacts with whom?"

Tom shrugged. He spoke evasively. This was no place to discuss such delicate matters and the deal he wanted to offer us would take too long to explain. His hurried whisper turned frantic. He couldn't go back to the Sino-Soviet. If we refused to take him in, he was prepared to destroy himself.

"I'm your last chance. Believe me, Kimmie, you'll never get your terminal built without my contacts."

Marko finally agreed to talk to Thorsen. Tom stayed close to me, mopping at his wet face and watching the Sino-Soviet delegation as if he expected to be dragged away.

Petrov, however, accepted the situation with fine diplomatic suavity. Returning to the podium, he announced that the defector was a running dog of capitalism and a proven enemy of the people. His ruthless criminal activities had betrayed the trust of the world proletariat and he was no longer a welcome guest of the Sino-Soviet. Concluding, Petrov offered us an ironic farewell and departed with his delegation, leaving Tom behind.

Angered by the whole affair, Thorsen put Tom under guard and took him back to the American residence. We didn't see him again for several weeks—or until the final dismemberment of COSMOS had been completed.

Title to the mesa and all the Skygate facilities reverted to America, as the charter provided. Suddenly recommissioned a Space Force general, Thorsen assumed command. He disbanded the old international security force and organized his own new security arm.

In the long squabble over the assets of COSMOS, Petrov demanded the tetrahedron for the Sino-Soviet. Refused that, he wanted Kyrie. When Marko pointed out that the tetrahedron was useless to us without her to read it, he offered to settle for

Nick. Thorsen seemed willing to surrender him, but Carolina protested bitterly that Kyrie would die without him. There was no demand for Guy.

Petrov agreed at last to let America keep the children and the tetrahedron. In return, the Sino-Soviet took over the remaining space facilities of COSMOS, which had dwindled by now to the Earth and moon platforms and the nearly abandoned installations on the surface of the moon.

WHEN Petrov and his people were finally gone Thorsen had us bring the children to a briefing room in the old COSMOS headquarters, which now flew his own flag. Nick and Kyrie perched on tall stools, squirming itchily in stiff white coveralls and a frilly pink little-girl dress. Carolina hovered behind them. The nexode lay on the table before them, one point of opulent splendor in that ugly, barren, military room.

Guy sat with me at the side of the room, too big for his chair, his odorous and hairy masculinity cloaked in a plaid raincoat. Flat and bright and empty, his yellow eyes weren't looking at Nick and Kyrie—or the armed guards around us or anything at all.

A heavy cast-bronze ashtray lay on the table before us—a doughnut-shaped replica of the moon platform. He picked it up in his massive paws, turning it absently. Presently I heard a crack like a gunshot and saw that he had snapped it in two. The guards around us were startled, but Guy sat fingering one of the fragments, unaware of anything amiss. Before we left he had broken the bronze into a dozen lumps.

The guards stood up when Thorsen came in with his new security chief. Major Gort was a tall, lank, sallow man with sparse red hair and sleepy greenish eyes. He moved with an unmilitary slouch and spoke in a hoarse undertaker whisper.

Thorsen had put on a kind of armored arrogance along with his two new stars. Scowling at the children as if they stood accused of something unspeakable, he introduced Gort and laid down new rules for us.

"Skygate's a fortress now." Staring at the many-colored pyramid as if hypnotized, he recovered himself with a spasmodic twitch. "We're setting up a strictly military effort to control all our space contacts—and we're on the front line here."

"Father, please!" Kyrie raised her hand like a child in school. "Won't we be allowed to work on the terminal—"

"Absolutely not." He scowled bleakly. "We're losing a war with the space aliens already around us. Our mission here is to perfect new defenses." His sunken eyes flashed

to Nick. "The engineers think your flying beer can might be used to propel a missile fast enough to knock out the space snakes."

"But, sir—" Nick's small voice shook—"we were born to build the terminal. We can't waste ourselves killing other creatures."

Thorsen's gaunt face lost color. He gulped and reached for a glass of water that Gort was hastily pouring. It shook and spilled over his hand.

"Now get this," he rasped at last. "COSMOS is dead. Skygate's a military post—and you'll all obey my orders. You'll forget that terminal. You'll waste no time on what you call pure research—on what you call knowledge for its own sake."

Carolina tried to say something about academic freedom.

"Get this!" The cracked voice rose to cut her off. "We're fighting for survival. Space war is a new game. We can lose it to a bug from Saturn or maybe win it with Nick's beer car. Every act will have to fit our total military effort. Get me?"

"I get you, General." Carolina stung him with her tone.

"All of you had better get—" His face turned dark and his old voice broke. He gulped water, cleared his throat and tried to smile. "Don't take me wrong. We used to be friends. I don't want to injure anybody. Remember—I didn't trade the kids to Petrov. I'll try to keep you here as you are if you'll only play the game. But get this—"

His dull eyes swept across us, one by one.

"Marko." This was a grim stranger speaking, no longer Marko's old comrade on the moon. "Hodian. Carolina. If you fail to see things my way, you'll be replaced. You may not see the kids again. Am I clear?"

"You're clear, General Thorsen," Carolina whispered bitterly. "Very clear."

I hated Thorsen from that day, yet I felt a growing pity for him, too. Bewildered and despairing, he was fighting desperately for the survival of the only world he knew. As much as I loved Nick and Kyrie and Guy, I, too, had come from his old world. I could feel his tragedy.

GUY growled once, softly, just before Thorsen rose to close the meeting. Even then he didn't look at Nick and Kyrie, but I could see them bending eagerly over the tetrahedron, their intent faces turning brown again in its growing light. Absorbed in it, they started when Carolina spoke to them.

"Please! Let's go back to the lab." Kyrie whispered eagerly. "I think we've found something new."

"A weapon?" Carolina was sardonic.

Kyrie looked hurt and shook her head.

"We don't know." Nick was still staring into the tetrahedron, his eyes oddly dilated. "We don't know yet."

Major Gort sent a security car to take them to the lab, and they entered the darkroom together. They stayed all day. Late that night, worried about them, Carolina knocked and went in.

She found them lying like two children on the floor, the tetrahedron glowing splendidly between them. Their wide eyes were fixed on it and they didn't move until she touched them.

She persuaded them to take a break. They came to the kitchen, walking dreamily together with intimate collisions of hips and shoulders, as if what they were finding had been some delightful new awareness of each other. Silent about the nexode, they gulped a little orange juice and hurried back to the darkroom.

THORSEN called my office the next morning. My brother was to be questioned and he wanted me present. The interrogation took place in the same briefing room. Major Gort presided. Tom came in between two guards, who led him to a chair and stood alert behind him.

He looked puffy with soft, fat, rumpled and seedy. Squirming uneasily under Gort's sleepy stare, he caught my eye and grinned appealing, turned nervously to beg his guards for a narcorette, stared defiantly back at Gort.

"Mr. Hood, we're considering your request for sanctuary," Gort began at last. "Before we can do you any favors, you have a good deal to explain."

"I'm no crook." Tom's voice shook with indignation. "I'm an astronaut. I was trained by COSMOS. After retirement, I took a civilian job in a member nation—a right guaranteed by the charter and my COSMOS contract. Now I've come home to see my brother and my son. Is that criminal?"

"We've heard about your civilian jobs." Gort's cat-eyes were blankly alert, as if Tom were a tricky mouse. "I believe one of them was smuggling moon grit."

"But that was a kosher deal." Tom looked offended. "I was a legitimate agent, acting for Mr. Howard Hudson. He mined the grit on the moon. His operations there were legally licensed, with all fees paid."

"That grit was stolen from under the nose of Moon Control."

"Perhaps it was mined in the dark." Tom shrugged. "Hudson didn't make his billions sitting on his tail."

"You sold the grit," Gort resumed. "As part of your payment you were employed, I believe, by the Sino-Soviet."

"I was hired as a space engineer." Tom's voice stayed level, but his fat dark face shone with sweat. "I soon found, however, that all they wanted was my genes—the altered genes I had brought back from the moon. I was sent to a lab in the Gobi to breed more moon children."

"So we'd heard." Gort nodded sleepily. "What were the results?"

"Not good," Tom said. "The experiment lasted five years. A dozen creatures were born alive. Not one was even semihuman. Three lived a year or longer, but they're all dead now." He hunched and shuddered. "Hideous little things. I couldn't bear to see them."

"You did other research with the grit?"

"As a matter of fact, I did." Tom's bulgy eyes widened warily. "I had a fine staff. We repeated most of your early work here. We were able to assemble a couple of second-stage tetahedrons, though none so large as yours. I think we learned a few things you don't know."

"Such as what?"

New uses for the tetrahedrons."

"We'll get to that." Gort crouched a little, like a cat about to spring. "Now—why did you defect?"

"The project had gone kaput." Tom's puffy shoulders drooped expressively. "My sperm had gone bad. All our moon grit had turned to dust—drained, I suppose, by your tetrahedron. The Gobi lab was abandoned to the space snakes. My bosses got what I call space paranoia."

"Huh?" Gort drew slightly back. "What's that?"

"They couldn't cope. Their image of mankind didn't fit them to meet the creatures of our sister biocosms. When they encountered another intelligence they expected to understand it. When they couldn't, their impulse was to attack. When nothing fought back—when the snakes just played hide-and-seek with their best missles—they went paranoid."

Gort froze, as if the mouse had suddenly become an ugly rat.

"I believe I can be useful in your work here," Tom added smoothly. "Besides, as I told you, I was anxious to see my brother and my son. How about it, sir?"

XIII

GORT ruled at last that Tom would remain in custody while his case was under review, but Thorsen gave him leave next morning to see the children. I rode with him in a security car down to the lab. Nick and Kyrie ran out of the darkroom to greet him with a warmth that surprised me.

"Guy's father!" Kyrie hugged him eagerly. "I'm so glad you're here. Poor dear Guy will surely be happier now.

Nick shook his hand politely.

"Please, Mr. Hood. Tell us about your work with the moon grit." His voice quivered with interest. "Carolina says you've learned new uses for it."

"We put together two second-stage tetrahedrons." Tom paused to study Nick the way he used to study me when we played chess. "They were too weak to project a readable record, but we found a linkage between them nobody had expected. They turned out to be remarkable signal devices."

"That's no good to us." Disappointment erased Kyrie's eager smile. "We've only one nexode—"

Her breath caught. She and Nick stared at one another, eyes black and wide. Bright hope flowed back into her face. Nick turned abruptly back to Tom.

"Do you think other messenger missiles have reached the solar system?" His breathless voice was almost too fast for me to follow. "Do you think the other biocosms may have assembled nexodes of their own? Or do you think—" emotion froze him for an instant— "our nexode might have power enough to reach the people of other stars?"

Tom gestured with the fluent assurance of some bazaar merchant proclaiming the unutterable worth of a smuggled emerald.

"I bring you these questions," he said, "and others equally exciting. I hope to help you answer them—with General Thorsen's permission."

They took him into the darkroom, where the nexode was. He spent three hours there. The waiting security men grew restive and finally sent Carolina in to learn what they were doing.

She found the lights on. Nick and Kyrie were seated on the floor, face to face. Nick holding the pyramid in his two hands and Kyrie leaning over it, her brown fingers touching and stroking the bright triangles of its patterned faces as if playing some curious musical instrument.

Tom sat near them on a stool, smoking his scented narcorette and calling out rhythmic syllables that Carolina though were numerals and direction-words in Mandarin.

He scowled with annoyance at her intrusion, but Nick and Kyrie gave her no attention. She watched for a few minutes and came out to report. The guards phoned Major Gort, who bustled over to discover what was going on. Nodding for us to follow, he burst into the darkroom.

TOM objected angrily, but Nick and Kyrie didn't look up until Carolina touched them. They seemed frightened then. Nick clutched the tetrahedron against his bare chest. Kyrie turned pale and tried to wave us back.

"What's all this?" Gort's hand

was on his gun. "What are you up to?"

"I'm only showing them what we learned at the Gobi lab." Tom was sullenly plaintive. "A technique for operating the crystal. An orientation to the operator's brain. A sequence of contact points. A rhythm of relaxation and attention."

Cateyes narrowed, Gort drew back from the tetrahedron as if it had become a dangerous dog. "What does it do," he asked, "when you operate it?"

"That's what we were trying to discover when you stopped us."

Gort snorted. "You'll have to tell me more than that if you want permission to go on."

"Sir." Nick stood up with the prismatic tetrahedron. "The nexode is a kind of machine. It communicates ideas, but not with anything quite like language. It uses its own sort of symbolic system for grasping reality." He hesitated. "I'd like to tell you more about it, sir, but the symbols are not translatable in any way I think you could understand and the reality they represent doesn't fit any symbolic system you know. Mr. Hood is trying to show us a better way to operate the machine."

"To communicate with what?"

"So far—just with itself." Nick's intense black stare dropped back to the tetrahedron. "Now I think we can read parts of the record that we couldn't before. Mr. Hood thinks it might be linked with other nexodes, perhaps on other worlds. But we have not yet established any such contact."

Gort's greenish eyes blinked sleepily.

"Come along, Hood," his raspy whisper came at last. "I want to check with the general before you go any farther." He swung lazily to Nick and Kyrie. "Any attempt to use that object for communication with anything at all will have to be cleared with General Thorsen in advance. Do you understand?"

"Yes, sir." Nick glanced quickly at Kyrie. "We understand."

Grumbling under his breath, Tom left with Gort. Nick and Kyrie hurried back into the darkroom. Guy had been asleep for sixty hours, but he woke that afternoon. When he wandered into my office I called Gort and got permission for him to visit Tom.

A SECURITY car took us to the old Sino-Soviet residence. Tom's guards brought him down to meet us in a big room which the departing delegates had stripped of everything movable.

"So you're Guy! My son—"

Tom was waddling eagerly to meet him, fat hands reaching out, but he stopped with a gasp when Guy bounded toward him like a bear masquerading as a man. Before he could run he was crushed in

Guy's embrace. His breath came out in a frightened grunt.

"Father! Father!" Guy's slow voice was thick and strange with surging emotion. "I thought you would never come."

Tom squirmed with terror until Guy's arms opened. He tried to escape then, but Guy still held him with one great paw, stroking him eagerly with the other, whimpering like some tormented beast. Tom wheezed for breath and offered Guy a trembling hand. Soon they were famous friends.

For the next three days they were never apart. They walked on the mesa, worked out together in the gym and lounged in the nursery. The guards tried to protest when Guy followed Tom back to his room at night, but his rumbling growls persuaded them to let him stay.

Each day Guy came by the office and picked me up, with an air of apology for putting his father first. I watched them together, astonished by his emotion and searching for Tom's intention. Later security let me listen to the tapes of their talk in Tom's bugged room.

Guy's role was doglike adoration. After lonely years, he had found his father. He sat for hour after hour, great yellow eyes fastened on Tom, begging for every detail of his life and Robin's.

Tom's tales amused me. Though the truth should have been sufficient, he made Gamal Hodian a martyred saint, our mother a comic peasant, Robin a wild nymphomaniac. In his stories of the moon and the stud farm under the Gobi he made such an unlikely hero of himself that one day I warned Guy of his gift for fiction.

"Don't lose your cool, Uncle Kim." He winked a tawny eye. "I know what isn't true. I'm only helping my Dad play his little joke on security."

I failed to guess the nature of that little joke—even the next day when Guy had a distressing encounter with Nick and Kyrie. He and Tom had stopped for me. As we were strolling past the lab on our way toward the gym, Tom began asking Guy how he had been able to build the great tetrahedron out of the grit. The questions worried Guy.

"I don't—don't remember." His slow voice thickened, and he stopped on the sidewalk outside the lab. His gray ears flared. A low growl rattled in his throat.

"But come," he rumbled suddenly. "I'll show you."

He darted into the lab. Tom gave me a searching look and ran after him. The security men shouted and fired a warning shot, but Guy was already gone. I followed them into the building.

The tetrahedron lay blazing on the darkroom floor. Guy crouched over it, whining as if hurt. Nick was backing away, fingering a long

red mark where a point of the crystal must have raked his naked chest. Kyrie fluttered between Nick and Guy, white with terror and dismay. Tom stood in the doorway, gesticulating with his reeking narcorette and trying glibly to talk the tension down, imitating our father's Turko-Yiddish accent to retell a peasant fable about three thieves and a stolen goat.

"Come along, Hood!" One of the security men jabbed a gun at him. "You're in real trouble now—"

Guy's gorilla roar paralyzed me. In a blur of motion, he reached past Tom, snatched the guard's arm, hauled him into the darkroom. When the roar died, the guard lay flat on the floor and Guy was snapping the stock off his gun as if it had been a candy toy. The other man had gone for help.

"Easy, now—" Tom had to wheeze for his own breath. "Let's get the goat back in the bag." He waved the narcorette and grinned at me. "How about it, Kimmie? Are you old Thorsen's stoolie? Or will you take a chance?"

I didn't know what he meant.

"Once a *schlemiel*—" He shrugged and turned to Nick and Kyrie. "How about you kids? You want to die for good old Gort? Or try your luck with us?"

"Our mission is to build the tachyon terminal." Nick caught Kyrie's pale hand and they faced Tom steadily. "We won't let anything stop us. But I'm afraid you can't help us, Mr. Hood."

SIRENS were screaming outside by then. Gort came catfooting down the hall, the alert squad behind him. He handcuffed Tom, scooped up the tetrahedron and herded us all outside to wait for Thorsen, who was just pulling up in his staff car.

"Erik!" Tom grinned and started toward the car, holding up his cuffed wrists. "I'm glad you got here. Your people are about to muck us up. Let me explain—"

"Stand back, Hood." Savagely angry and visibly ill, Thorsen beckoned Gort to the car. "Hold this man under double guard," he rapped. "Check out your notion that he's spying for our space enemies. Charge him with treason."

"My friend!" Tom whined bitterly. "My old moon companion—"

"Lock that up in the headquarters safe." Thorsen's bony, bloodless hand trembled toward the tetrahedron. "Nobody is to touch it without written permission from me."

"Yes, sir."

"You kids." Thorsen's dull stare swept Nick and Kyrie. "You've played too many games. I want your beer-can drive developed into a missile propulsion system. Beginning tomorrow."

"Father!" Kyrie pointed at the long red scar across Nick's ribs. "Don't you see he's hurt?"

"Tape him up," Thorsen snapped. "Shop space will be provided. You can requisition what you need. But you'll be working under guard and without that lump of moon grit."

Standing hand in hand, tanning slowly in the sunlight, they said nothing. Thorsen barked at his driver and the staff car departed. Gort licked his lips and prodded Tom into his own car. Guy growled and started after him.

"No, Guy," Kyrie whispered. "They'd only kill you."

Guy whimpered and blundered away alone. I walked with Nick and Kyrie back to the nursery. Silent and despondent, they refused a meal Carolina heated for them in the kitchen and soon slipped away to sleep.

A space snake buzzed the mesa that night. I didn't see it. I was reading a novel in bed, trying not to think about the children and the terminal. I heard its screaming passage, felt the bone-deep chill of heat drained away, gulped at the bitter aftertaste in my mouth. The windows rattled. My reading lamp flickered and went out.

I ran to the door barefoot. Outside was black confusion. Automobiles had died. Men were cursing and running in the dark. Here and there a flashlight flickered. Random gunshots rattled.

Powerline transformers had gone out and the mesa was dark for an hour. When the lights came on I went down to the nursery. Nick and Kyrie were sleeping undisturbed. I talked to a security man who had seen the diving snake.

"It wasn't like the pictures," he said. "You couldn't see the shape in the dark. Just that jagged crystal in the heart of it. And the plumes reaching out like blue wings." He shivered. "Just one glimpse as it roared overhead—and nearly froze me to death."

I returned to bed without looking into Guy's room. Marko woke me early next morning, breathless with the news. Guy was gone, along with Tom and the tetrahedron.

"Tom's guards were knocked out and expertly tied up," he said. "The headquarters safe was left standing open. Nobody knows how they got off the mesa. Gort thinks it all happened during the blackout." He gave me a troubled stare. "I don't know what your brother is up to, Kim. I suppose you don't. But Gort thinks he's working with the snakes."

PERPLEXITY

XIV

A SECURITY car came for me before Marko left. I was held three days in a bare room in the old Sino-Soviet residence, while

relays of men with tape recorders probed for facts I didn't know about Tom and Guy. Gort joined them on the last day.

"Mr. Hodian, your brother was heard inviting you and Nick and Kyrie to try your luck with him. He called you a *schlemiel* when you said no, remember?" His sleepy eyes searched me. "You'll have to explain what he wanted."

But I couldn't explain Tom's proposition. I didn't know why the snake had come to buzz Skygate on that particular night. I couldn't tell him how the headquarters safe had been opened. Or how Tom and Guy had left the mesa with the tetrahedron.

"Better talk," his hoarse whisper warned me. "Before we have to try the biochemical confessors."

I was sick with dread of a new ordeal the next morning. Gort's men took me to the headquarters building, but there were no biochemicals. Thorsen, instead, came shuffling to meet me at his office door, looking white and feeble and vaguely apologetic.

"Hodian, we're desperate." He gave me his unsteady hand. "I don't suppose you know that patches of that queer sea fog have begun drifting over the west coast of Mexico. It comes in at night and drifts back to sea when the sun comes up. It has covered two or three fishing resorts. When it goes out the towns are empty. People, animals and even fish-bait—gone. Nobody knows what sort of things are in the fog—or where they mean to stop."

He tottered back to his desk and nodded for me to sit.

"We believe they're invaders—intruders from another biocosm. From Venus or more likely Mercury. We have evidence they're allied with the snakes. We suspect that your brother has been in contact with them—using assemblies of the moon grit for communication. That's why we've questioned you."

Slumped behind the desk, he paused as if to collect his wasted vitality.

"You're our best lead, Hodian. You're Hood's brother and Guy's special friend."

His shaking arm made a helpless gesture. "I hope you'll give us any help you can."

When I said again that I couldn't help, he merely shrugged and stared, with no more threats. I sat wondering whether this new mildness reflected Suzie's kindness. She had stayed on at Skygate through the years he was away, keeping busy in the nursery or the lab, sometimes joining our small social affairs but firmly declining dates, returning my open admiration with nothing more than friendship. She was back with Thorsen now, cheerfully patient with his new infirmities, tending him as faithfully as if he had been another moon child.

I RETURNED to the nursery when he let me go. Kyrie was just awakening from the longest sleep of her life. I sat with her in the kitchen while she picked dully at a breakfast tray. She looked so bad, so pale and pinched, that I had to ask what the trouble was.

"Uncle Kim, I had a dream." She pushed the food away. "I don't dream much, but this—it was awful. About Nick and Guy. About the nexode and the terminal." She shivered. "It's too bad to tell you."

That was all she would say. I went with her to look for Nick. We had to wait for Gort's permission, but at last a security car took us out to an isolated building near the end of the strip, beyond the spaceplane hangars. Once a quarantine station for returning spacemen, it was now Nick's shop.

Guards at the door called Gort before they would let us in. We found Nick with Ken McAble and two or three of his space engineers around a drafting table in a big windowless room. He kissed Kyrie tenderly and gravely shook my hand.

"We're supposed to be designing what the general calls my beer-can drive," he said. "But we've got problems."

One long wall was lined with computer-driven metal-shaping machines that McAble had requisitioned from the spaceplane hangars. Benches were cluttered with parts and half-completed models, all finished with far more care than Nick's first flying plank.

The big problems, he said, were assembly and control. When Nick had assembled and adjusted a unit, it somehow transformed any sort of radiation into kinetic energy, drinking up heat and screaming away until it hit something or went out of sight. When anybody else put one together, nothing happened at all.

"The gadget makes no sense to me." McAble had worked twice around the clock with Nick; he was bearded and hollow-eyed. "It violates Newton, acting without a reaction. It breaks the Second Law of Thermodynamics, decreasing entropy. Running energy uphill!" His tired eyes glared at Nick. "Can you account for that?"

"Newton didn't know all about the universe." Nick sat cross-legged on the table, child-small and naked to the waist but patient and grave as another Einstein. "Neither did Kelvin or Planck. Their laws are true for the cases they were able to observe. But somewhere in spacetime, energy did run uphill, increasing entropy to make the matter we know. Otherwise our universe would not exist."

McAble bent groggily over the drawings again, asking about symbols that Nick seemed unable to explain. I watched for a few minutes without understanding anything and went to look for Kyrie. I

found her in Nick's new office, huddled down on the floor in a corner, silently crying.

"It's aw-aw-awful, Uncle Kim."

She didn't want a tissue or a cup of water from the cooler or anything at all. She wouldn't even smile.

"We ought to be building the terminal before our time runs out. I thought the nexode would show us a way. I just couldn't believe poor dear Guy would do what he did. But now—" her quavering voice was almost a wail— "I just don't know."

When Thorsen came later to inspect the project, Nick begged him to give it up.

"Please, General! Maybe something in the fog doesn't like people, but we don't need weapons against the snakes. I don't think they mean to harm us."

"They cause planes to crash."

"Not on purpose, I think," Nick objected. "I doubt they even know they're hurting anybody. I imagine the sharing of energy is their way of greeting—their plumes always glow with a brighter light while they're soaking up heat. Perhaps they're trying to tell us something."

"Bull!" Thorsen croaked. "Anything they want to say, I don't care to know. You just give us the drive. We'll decide what snakes to kill." He glared feverishly at me. "Come along, Hodian. I want you to draft a news story for us. Something to blanket the panic. Play down the fog and the snakes. Play up what we're doing here."

I waited to learn what that was.

"We're coordinating all contacts with our neighbor biocosms. We're analyzing all the data from space and planning a well-balanced program of energetic action. We intend to keep on top of the situation. There's no cause at all for public alarm."

HE KEPT me busy for the next few weeks, rewriting bad news to make it look less alarming. The space snakes had diverted or disabled a salvo of nuclear missiles fired at a patch of fog drifting toward the Golden Gate. A pair of scouting submarines were overdue and presumed lost beneath an area of Atlantic fog. Space snakes were reported roosting on the summits of Aconcagua and Kilimanjaro.

I went back to see Nick and Kyrie when I could. To my surprise, they were eagerly busy as if they believed our press releases. Kyrie had learned to operate the computer console. The machines it controlled were grinding out intricate bits of metal and plastic for Nick and the engineers.

I watched Nick launch two or three more flying devices, one no longer than a pencil, which had a crystal of rock salt for a core. Each shrieked out of his fingers and vanished into the distance, leaving a chill in the air and a black taste in

my mouth. But he was still unable to translate his description into any form the engineers could grasp or copy.

Absorbed in the project, Nick and Kyrie stopped coming back to the nursery for rest. Carolina made Marko move into the living quarters of the quarantine building to look after them. The last time I called, two security men stopped me at the door and sent Marko out to talk to me. He said they were asleep.

McAble overtook me on the parking lot as I was leaving. He wanted me to join him at the Skygate Hudson for a couple of drinks and a steak. He needed to talk. Keeping up with Nick and Kyrie wasn't easy. One by one, his fellow engineers had given up and gone. He felt ready to join them.

"Kim, I've got the jitters." He caught my arm and clung, as if seeking human warmth. "Not just from your double-talking press release, either." His haunted face twitched, trying but failing to grin. "It's something here." He glanced uneasily back toward the angular building, stark and black against a blood-colored sunset. "Something I don't understand."

I waited for him to explain.

"Something makes sounds—a patter or a rustle or a sort of chirp behind you." He patted his pockets distractedly. "Something steals little objects—keys and coins and pens. Something watches you out of the shadows and scuttles away before you can turn on a light."

"Could be packrats." I tried to cheer him up. "This desert's full of them. The building's been empty for years. They could have got into the basement. They're shy and they make sounds and they'll steal nearly anything."

"Rats?" He shook his head. "I don't think it's rats."

We drank too much that night in the hotel bar, talking about the mocking promise of a high transgalactic culture, about the fog and the snakes, about what might have become of Tom and Guy and the tetrahedron, about Nick's impossible beer-can drive, about packrats or something in the quarantine building. Our troubles were hard to drown.

We never got to the dining room. The lights went off while we were still in the bar. After one feeble flicker—when the stand-by plant tried to take up the load—they stayed off. I waited for the sonic boom of another snake flying by and sucking up our power, but no sound came. We had a few more drinks to the end of things, and I remember a bellboy with a candle putting me to bed.

McAble shook me awake the next morning. My head throbbed and my mouth was foul. I didn't want to hear what he was saying.

"Your friend Gort's on the phone. He says get your tail back to the mesa. He wants to know why

the power went off and what became of the quarantine building and where are Nick and Kyrie."

McABLE drove me home to the mesa. We found traffic stacking up ahead of us outside the main gate. Nobody seemed to know why, but the guards were turning back most of the civilian workers. Tight-lipped, grim men searched our car and called headquarters before they let us through.

Inside the reservation we found tanks standing at all major intersections. Troops were stringing barbed wire across the lawn and piling sandbags around the entrance to headquarters. A squad of nervous men in combat gear were setting up a missile-launcher on the parking lot behind the building.

They held us till Gort came down, trailed by a stocky Navajo security sergeant. Gort looked as bad as I felt—he was sallow-skinned and twitchy. His sleepy eyes were swollen and his raspy voice was coldly hostile, as if he blamed us for everything.

I tried to ask what was wrong.

"Get in." He waved at his car. "We'll take a look."

The Navajo drove. Gort sat tense beside him, peering into each cross street as if he expected to see an alien invader. The headquarters area was crowded with military vehicles and men digging in, but the road to the spaceport was ominously empty.

"Something's out there." Gort gestured abruptly toward the old airstrip and the vacant mesa. "It cut the power lines last night. It demolished the quarantine building. It's still there."

"Nick, Kyrie—where are they?"

Gort twisted to watch a beer can glinting in the weeds as if he expected it to take off for Jupiter. When we were safely beyond it he muttered at the Navajo.

"Tell 'em, Harry. Tell 'em what happened to you."

The name on the Navajo's badge was Harry Horse. In an awkward mixture of bad English and worse Spanish he said he and Corporal Miraflores had come out in the night to relieve the two men on duty at the quarantine building.

He couldn't say what the time was, because all electric clocks and electric watches had stopped, but the lights were still out everywhere and day had not come when they pulled into the parking lot.

Por Dios! It was an unlucky night. In the sweep of the headlamps, as the car turned, he saw that the quarantine building had fallen in. Flattened. Like a paper box under the cleats of a tank.

Leaving the headlamps on, he and Miraflores got out of the car to investigate. The building had been mostly steel. Scraps of metal and broken brick still cluttered the site. In the rubble—

SERGEANT HORSE was driving slower now, watching every weed along the road. Something had been swarming in the rubble of the fallen building. *Ratónes? Arañas grandes? Quien sabe?*

Rats, maybe. Great spiders. He couldn't say, because the creatures scuttled cunningly out of the light. Yet he and Miraflores could hear them working on the metal. They made a sort of humming whine, like many small machines. He tried to imitate it.

Damn! He found the English expletive. The lights of their car went out behind them while they watched. The creatures were eating the car! He and Miraflores ran back to the airstrip, but nothing chased them. Daylight was coming now and they ventured back near enough to watch the somethings consuming the car.

The light was not yet good, but he said *los demonios* looked like ants swarming over a dead lizard. They came along one path and took bits of the car away along another. Metal, tires, glass. Soon there was only the engine block and the naked frame, like the bones of the car. The last scrap was gone before the sun came up. *Toda la máquina.*

He wanted Miraflores to report the creatures while he stayed to observe what they did, but Miraflores was afraid Major Gort would not believe him. *Bichos*—bugs eating a car! They ran all the way back to the security center.

"Well, Hodian?" Gort turned to glare back at me. "What do you make of that?"

Without much to say I looked at McAble.

"Major, we've had something—" He stopped with a gasp when a dove flew up beside the car. "Something in the building. I was telling Mr. Hodian last night. Nothing I really ever saw. Something scuttling about behind me and stealing metal objects. Mr. Hodian said it was a packrat."

"A pack—a pack—" Gort wheezed and twitched and finally broke into a stifled laugh, while Harry Horse drove stolidly on. "So Hodian said it was just a packrat!" He gulped and wiped his eyes. "I wish to God it were just a rat!"

Abruptly, with a Navajo grunt, Harry Horse hit the brake. Tires squealed. The car lurched and stopped. Harry leaned out, pointing.

"God!" Gort breathed. "Look at the varmint. Flying!"

It dropped out of the sky ahead of us. A queer insect flying with a piece of string. It looked larger when it struck the pavement, at least a foot long. The string was a ten-foot section of stolen power cable, which perhaps had been too heavy for it.

For a few seconds it lay still, not a dozen yards from us. Ant-shaped, it had three segments. The head segment was silver-colored metal,

a bright eyeless hexagon. The thinner center segment sprouted dark stubby wings and a cluster of limbs like silver wire. The tail segment was a slick black ball.

"*Un hormiga!*" whispered Harry Horse. "*Un hormiga de maquinaria!*"

A mechanical ant! Moving now, it lifted and turned its blank metal head as if watching us. A single delicate bright antenna uncoiled above its middle section, curving alertly toward us. After a moment it darted back to the bit of cable, caught it with clustered limbs, dragged it off the road. Its tail segment turned white as it disappeared into the weeds.

"Did you see that?" McAble glanced at me and watched the weeds again. "The way it moved? And that white flash?"

"I saw it," Gort snapped. "So what?"

"It doesn't run," McAble said. "It flies—even on the ground. The limbs aren't legs. They're manipulators. The wings don't beat. They're probably just for balance and control."

"So what?" Gort repeated.

"Did you see the frost on its tail?" McAble asked. "I think it's kin to the space snakes. I think it flies with something like Nick's beer-can drive."

"I don't give a nit how it flies." Gort's heavy-lidded eyes glared accusingly at me, as if he thought I had invited these invaders. "Hodian, what *are* the things? What are they up to here?"

"How—" My dry throat made only a croak. Then I managed: "How could I know, Major?"

ALL the reports of that ominous fog and the invading snakes had been disturbing enough, but they were still remote. This ant-shaped thing was here, as strange as they and probably still watching us blindly out of the weeds. A sense of creeping terror numbed me.

"Drive on," Gort told the Navajo.

"Nick and Kyrie were in the building." That recollection struck me like a club. "Yuri and Carolina, too. What's become of them?"

"Dead," Harry Horse muttered solemnly. "Killed when house fall in. Duckworth and Wiezell, *tambien.* Six people eaten *por las hormigas metálica.*"

"Maybe they got away," McAble said. "The things don't seem vicious."

Harry Horse doubted that. He and Miraflores had come back in another car to scout the perimeter and military aircraft had been overflown and photographed the whole area. They had found only weeds and desert brush and *el hormiguero de acero.* The steel ant hill.

"I hope to God the kids are dead!" Gort grated suddenly. "If they're alive it means they've been dealing with these invaders."

"Huh?" McAble frowned at him. "How do you figure that?"

"In the first place, Nick and Kyrie aren't exactly human." Gort spoke with a whispery vehemence. "The general says they've never cared for anything except getting in touch with their own space kin. Hodian's brother was showing them how to use that tetrahedron for a signal device. Who were they trying to signal?" His swollen eyes glared at me. "Maybe these mechanical ants—if that's what you call 'em!"

Harry Horse was stopping the car near the end of the asterite strip. A weathered sign read QUARANTINE STATION and a side road ran two hundred yards toward a mound of brown earth where the building had stood.

"Let's have a look." With a nod at me McAble glanced at Gort. "You'll wait, Major?"

"Don't count on us," Gort growled. "If anything happens—you asked for it."

Not very eagerly, I climbed out after McAble. Harry Horse turned the car around, ready for a fast getaway. McAble was walking toward that new mound, not looking back. I followed him, breathing hard.

The pavement was empty. Our feet seemed too loud on it. We passed a clump of tall dead weeds grown where rain had stood in the ditch beside the road. I jumped and stopped when something rattled them, but McAble said it was the wind or maybe just a rat.

I felt sweat trickling down my ribs, though the day was not yet hot. McAble stopped ahead of me to kick at the mounded earth. Still dark with dampness, it was packed smooth and firm.

"Three hundred cubic yards of excavation." He swept the mound with a calculating eye. "Maybe four. Plenty of room for Mr. Marko and the others, if they're alive."

I followed him up the smooth brown slope to a bright flat dome that crowned the hill. He made me hold a tape while he surveyed it. Twenty feet across, with a two-foot rise at the center. Six circular holes around the rim—the doorways—were sealed with metal plugs. He tried the metal with the point of a pocket knife and kneeled to put his ear against it.

"Listen!"

I caught a faint sharp odor like hot sulphur when I bent. The metal felt slick and warm. With my ear against it, I heard a murmuring hum, fainter and pitched higher than the sound of bees. When McAble tapped one of the plugs with the handle of his knife that busy whisper ceased for seconds. It came back slowly and didn't stop when he tapped again.

"Nick would know every sort of code," McAble said. "If he's alive, we ought to get an answer."

He kept rattling his knife against the metal and listening hopefully, but all we heard was that faint shrill drone, until Gort began honking impatiently for us and a military helicopter clattered overhead. McAble came reluctantly away.

"Move," Gort barked as we came near the car. "The general called. He's setting up a demolition raid on the anthill. He wants us out of the area."

"Demolition?" McAble protested. "Is that necessary?"

"Get in," Gort rapped. "Quick!"

At his impatient nod Harry Horse pulled away before we had time to close the doors.

"Shouldn't we wait?" I asked. "Suppose our friends are alive in that dome? Captives, maybe?"

"Their tough luck," Gort growled. "The general's afraid to wait."

XV

HE FOLLOWED Gort through the barbed wire and sandbags into the headquarters building. Thorsen's appearance shocked me. Wasted and shaking, he was a walking skeleton, animated now with terror. He clutched at McAble's sleeve and asked a few hoarse questions about the steel anthill.

"I'll give you another look," he promised us, "after we've blown it out of the ground." He shuffled toward the staff officers waiting. "The target area is now clear." His quavery voice turned violent. "Attack!" he gasped. "We don't know what the invaders are up to —but they've got to be exterminated."

"Erik," I tried to protest. "General Thorsen, your own daughter is probably in that dome. Along with Nick and the Markos and those security men. Captives, maybe. If they're alive you'll kill them all—"

"Hold it, Hodian." He cut me sharply off. "The invaders have ignored our signals. They are a clear threat to the whole Skygate facility—perhaps to the human race. I refuse to be diverted by anybody. Our operation will proceed as planned."

We watched from the headquarters roof. Heavy mortars chuffed behind us. Shells rained on the mesa, raising geysers of yellow dust. A spotter craft wheeled over the target.

"Fire ineffectual." A laserman relayed the message to Thorsen. "Shells falling on target aren't exploding, sir. We've had direct hits and near misses. But there is not a dent in that dome."

Thorsen scowled at McAble and me.

"You surveyed the target," his brittle voice crackled. "Can you account for this?"

"Maybe." McAble shrugged. "We saw frost on one ant's tail. Apparently they soak up energy

like the space snakes do. Probably they're de-energizing the fuses of shells that come within their range."

"Then I'll call in an air strike."

"I wouldn't advise it, sir." McAble squinted shrewdly at the wheeling spotter plane. "I see no advantage—"

Shrill with frustration and fear, Thorsen ordered the air strike. The aircraft were invisible against the dazzle of the sun, their black bombs tumbling out of a serene and empty-seeming sky. Explosions winked and dust rose in yellow mushrooms and the mesa rumbled with dull thunder.

"Bombs not effectual, sir," the laserman reported. "Visible explosions come from wide misses. No apparent damage to target."

Thorsen called for napalm. Three flights of supersonic fighter-bombers crashed out of that smiling sky. Their bombs smeared the mesa with long streaks of yellow fire—which suddenly turned into drifting smoke.

"Spotter going down!" the laserman shouted. "Contact cut off —I don't know how, sir. But his last call indicates napalm not effective. Target still intact. Something snuffed out the fire, sir."

Shaking, Thorsen glared at McAble.

"I think it was that entropy-reversing field," McAble told him. "I believe its range has been increased. I think it put out the fire —and caught the spotter, too. I think you're beaten, sir."

"You keep thinking," Thorsen snapped. "I'm sending in the tanks."

The tanks went in, converging from three directions. The air quivered with their engines. Tracer fire streaked out of the golden dust that thickened over them. Under the rolling dust cloud, their thunder-voices stuttered and died. The noise stopped; the dust cleared. The tanks stood frozen in a mile-wide circle around their goal.

"Have a look, Hodian."

The desert danced and blurred in McAble's binoculars, but at last I found the anthill. Dead missiles had furrowed the mound of earth, but that metal dome showed no scar. I found a green-and-gray splotched tank tipped into a missile crater, dead. Something crawled along its level gun. A silver-headed insect.

"Watch out, Hodian!"

McABLE caught my arm and hauled. The binoculars flew out of my hand. Men around me gasped and cursed and ran. A typewriter dropped out of the air, crashing into the roof where I had been standing. It rocked and clattered as a bright-headed ant squirmed from beneath it.

I heard a fine mosquito whine. The metal ant climbed over the smashed typewriter and darted at my knees, flying a foot off the roof.

Numb with terror, I couldn't move. It stopped six feet away, hovering over the binoculars I had dropped. Its eyeless head rose and turned alertly. I smelled its hot brimstone reek.

"Back!" Dimly, I heard Gort's whispery shout. "Stand back, you fool—"

Stumbling back, I saw men drawing guns.

"All together," Gort called. "Aim for the head. Fire!"

The sun dimmed and lost its heat. A deep unpleasant chill sank into my bones. Bitterness coated my tongue. Shuddering and ill, I waited for the shots, but all I heard was an empty clacking.

"Watch its tail!" McAble sounded far away. "Hot with sucked-up energy. That's why we feel so cold. And why gun-powder fails to burn."

Its orange-sized tail segment was no longer black, but glowing dimly red. It settled toward the binoculars. Its bright snaky limbs explored them, wrapped them, clung. Its fine high whine grew louder as it rose—and that sulfur scent took my breath.

"Grab it!" Gort shouted. "For a specimen."

I took one unwilling half-step. McAble came plunging past me. He crouched, reached—and crumpled like an unstrung puppet. The ant shot upward with the binoculars to vanish over the mesa.

Behind it the sun shone bright and hot. The roof-top crowd stood quiet for an instant. A sparrow was fluttering overhead, carrying a grass blade for its nest. I breathed again, gratefully—and saw Gort reloading and lifting his gun. Shattering that brief peace, his test shot exploded the sparrow.

Hysterical voices babbled. Thorsen hobbled into the elevator, half-carried by his shouting aides. McAble twitched and groaned where he had fallen. I helped him stand and he stumbled clumsily away, rubbing his icy hands together.

"Hodian." Gort jogged my arm as we waited for the elevator. "We've got a rush job for you. The general wants a news release on the ants. Make 'em look harmless. Emphasize the fact that they aren't known to have injured anybody. Play down our failure to damage them. Don't connect them with the moon children—or the snakes or the fog. We're taking adequate action to cope with them and the general says they're under control."

I WAS sweating at my desk that afternoon, still struggling to give the story some hint of conviction, when Suzie Thorsen knocked and slipped timidly into the room.

"May I please speak to you?"

Though she had always kept me at a certain distance, I still admired her dainty charm and her clear-eyed joy in the comedy of life and even her patient fidelity to Thor-

sen. She wanted to talk about him now.

"Erik's sick, Kim—and I don't know what to do." She looked pinched with worry, her eyes dark-rimmed. "The doctors think he has some unidentified exoform virus in his blood. He can't sleep and he can't eat and he has such dreadful headaches. I sometimes think he's not quite sane. He ought to be hospitalized, but he won't give up his job."

I could say nothing useful. Though Thorsen's sickness had been evident to me, he wasn't likely to take my advice. All I actually did was take Suzie over to the nursery for a cup of coffee.

Military cargo craft were rumbling across the sky. Down the street, men in battle dress were loading trucks with files and boxes from the exobiology lab. Two sentries at the nursery door scrutinized our badges.

The kitchen inside was quiet, however—too quiet, with the children gone. Suzie made coffee. I poured a big slug of Mexican rum into mine, but she waved the bottle away. We sat a long time at the table, talking over her problems and my own.

The children had become the center of our lives. Involved in their long search for themselves, suffering with Kyrie in the conflict between Nick and Guy, excited by their splendid dream of the transgalactic terminal, we had been content to forget ourselves. Without them now, without Marko and Carolina, we both felt lost.

We needed each other. What we said was commonplace. I don't recall many of the words, but I do remember the comfort of her smile and the candor of her voice and the delightful conviction that she was really fond of me.

We didn't talk much about the ants. Their arrival was a final, unbelievable blow, so completely devastating that I had scarcely felt it yet. Trying not to think about them, I was pouring myself a second slug of rum when all three doors of the kitchen splintered inward.

"Hands up, Mr. Hodian!"

Men stormed in, guns pointing. Most of them were Space Force regulars, but the leader was one of Gort's lieutenants. He looked sweaty and jittery but also somehow startled and apologetic.

"You're under arrest, sir. Verbal orders from General Thorsen. No charges specified. We're taking you to the security center. You aren't allowed to communicate with anybody."

Suzie begged them to wait while she called her husband, but they marched me out while she was on the phone. At the security center they took me to Gort. He was rummaging his office in a harried way, dumping drawers on his desk.

"Okay, Hodian." His swollen eyes glanced once at me. "Here's

the situation. Ants are reported in the spaceplane hangars. Thorsen is calling in a nuclear strike. We're evacuating Skygate ahead of the missiles. I'm escorting you to another post. Our plane should be ready now. The guards will see that you don't talk to anybody."

"What—what do you think I've done?"

"I don't know, Hodian." His savage eyes flashed back to me. "Whatever you've been up to, I intend to find it out. We've no time for any formal charges now. But you're Tom Hood's brother. You've been involved in space research and you've been close to all the children. You're our best link to the ants."

"Believe me, Major. I don't know anything—"

He turned his back on me to dump another drawer. Our plane took off half an hour later. It was a big military transport, loaded with records from headquarters and the exobiology lab. The other passengers included McAble, Gort and a dozen of his men.

McAble was beside me in a window seat, still shaken and subdued from his skirmish with the ants. As we climbed I caught one glimpse of the mesa below a tipping wing—the zone of black craters and the circle of dead tanks around the untouched dome of the ant hill, which glinted in the sun like a lost coin.

"So Thorsen's going to throw in the nukes." McAble made a grim brown face. "He might as well throw in napalm to put out a fire. His missiles will be bread-and-butter for the ants."

Nobody had announced our destination, but the wheeling plane turned east. Trying to avoid the snakes, we flew cautiously low through the mountain passes and on across the square-patterned brown and green of the plains. Occasional turbulence began to rock us and presently I saw the dark cloud towers of a weather front standing all along the east horizon.

The turbulence increased. Rags of cloud whipped by. We bored into a blue wall of storm. The plane pitched and shivered. Rain streaked the window. We turned and climbed and burst out at last. Above the dazzling pillars of white, the sky was darkly blue.

"Uh-oh!" McAble frowned. "We're too high."

Not much later, everything grew darker. The cloud summits lost their dazzle. Fangs of cold sank into me. My tongue turned bitter. I heard the engines cough and die and knew a snake was diving on us.

XVI

I WAS numb and shuddering from loss of body heat, nearly as dead as the plane. Wrapped in its eerie quiet, I was barely aware of the rushing speed, of Gort's whispery curse, of McAble's sudden nudge. Turning painfully, stiff

as if my tingling skin were already ice, I saw the snake.

A long serpentine shadow, transparent as black-veined glass. Its heart was a jagged crystal mass, smoldering with dull inner fire like an uncut diamond. Two plumes of blue light spread out of the crystal, wings of cold fire. Powered with our own stolen heat, it swept in fast.

A bright pulse beat in the wide blue sprays. Perhaps the creature was sending some signal of friendship or warning. Perhaps it felt companionable. Perhaps it simply needed our heat. Its alien grace was as meaningless to me as the bitterness lingering in my mouth.

The plane nosed down and the snake was gone. The snowy clouds were dazzling again. I gulped, shuddered and got my breath. Gort lurched past us toward the cockpit, shouting orders at the crew, but the engines failed to start.

We spun down through a storm, through boiling clouds and battering winds, through darkness and lightning and jarring thunder, through rain and savage hail to a rough belly landing.

I recall jumbled fragments of sensation. A vague dark line of wind-whipped trees. A ripple of blue lightning, illuminating a toy-sized train creeping toward a toy grain elevator. Ripe wheat beaten flat with hail. A jolt, a pitch, a dazing blow . . .

The time after that crash is still a shadowy nightmare in my memory. The plane didn't burn, perhaps because the snake had drained so much of our heat. I believe McAble and Gort both lived– the recollection is dim as a dream, but I think they came together to visit me in the hospital, Gort on crutches, McAble with his arm in a sling.

As I try to look back, my own survival seems surprising. I believe I had a brain concussion. For a long time I lay in traction, with both legs broken. On top of such injuries I contracted a severe gamma-form infection. Perhaps it saved my life.

Dr. Ram Narasimachar was my physician. I knew him first as a brisk foreign voice, as a hand very deft with the needles that went into my veins, long before I saw his darkly arrogant face. Gort may have told him in the beginning that I was someone worth saving, but his passion was the space diseases. The mutant gamma-forms in my blood made me a laboratory specimen.

Living in my own delirium, for a long, long time I didn't care where I was or what was happening to the planet. Though I must have heard talk about the space war, its appalling disasters were never quite as real as my lurid private dreams of the children and the ants.

A quiet old Dane named Andy Elving used to clean my room in

the morning. He had been to the moon as a systems engineer on the seeker craft. Now his wife was dead of a space infection and his son was gone to the war. He lived alone in a small white house we could see from my window. He was growing roses in his back yard and he used to keep a vase of them on my window ledge.

He talked about roses and the town. Pitman had been a prosperous agricultural center. There was a militia camp near it now and a new munitions factory below it on the river. A long way from the mountains where the snakes had begun to nest and the seas where the fog kept spreading, it offered all the security he could find.

Even the ants had never come to Pitman, Andy Elving said. Their lust was for metal and power. As if fed by the nuclear strikes, they had scattered at first to Albuquerque and Las Alamas and White Sands. Later they swarmed unpredictably into larger cities, leveling everything to build their impregnable nests. Now, however, they were leaving the cities to mine the earth itself. With no ore-bodies near, Pitman was probably safe.

A YEAR and a half had passed when I began to care about the calendar. I started asking questions about the moon children. Andy Elving remembered reading about Guy's stealing the moon jewel. Nick and Kyrie had been killed, he thought, in the bombardment of the ants at Skygate. But that was all he knew.

Nobody had heard about any transgalactic terminal. I began to feel that the messenger missile had lain on the moon for sixty million years for no result at all, that the children had been born for nothing. I thought we had lost our race to stop the chaos of conflicting biocosms. For a long time I didn't even want to recover.

Andy Elving didn't like to talk about the war. Dr. Narasimachar was too sick and self-absorbed by now to talk much about anything. He had an acute gamma-form infection, probably picked up from me, and he was trying desperately to immunize himself with transfusions of my blood.

My first real news of the war came from other patients, after I was well enough to be moved out of isolation. Clayton Carter was a sunburnt ghost when he came into the ward, but his weakness came from hardship and exposure, not from any space disease. He was out of his head at first—maybe most of the time—but his unbelievable story rekindled my interest in the world.

A veteran Space Force pilot, he told me how the mechanics of his militia unit had built what he believed was the last spaceplane in America, out of salvaged wreckage. When it was ready his first test flight was a scouting mission across

the Rockies. Flying low and fast, he hoped to evade the snakes and bring back a report on what the ants were doing in the Skygate area. A diving snake killed his jets and forced him down, however, somewhere beyond the Rio Grande.

As the spaceplane went down, Carter glimpsed something that strained his faith in his own sanity. Even now he couldn't quite believe what he had seen and I had to coax the story from him. He was sitting up in bed that day, a black-bearded skeleton smeared with chalky ointments. I remember the tortured hesitation in his hoarse cattle-country drawl—he was a native New Mexican.

"The army don't believe what I saw—or thought I saw." His inflamed eyes peered uneasily at me. "A building on the mesa where Skygate was. A kind of tower—taller than the Rockies! Call me a liar—"

"Was it white?" I whispered. "Was it seven columns in a cluster? Did the tops of the outer columns make a kind of spiral stair? Did the center column have a pointed, shining dome?"

"Have you—" He gulped and wet his ulcerated lips. "Mister, have you been there?"

"THAT'S the transgalactic terminal!" My voice was as rough and breathless as his own. "The station the moon children were born to build, so the tachyon ships could come from the stars." For the first time I tried to sit up in bed. "Are you sure it's really there?"

"It's there, all right." Awe echoed in his voice. "Taller than I dared fly and shaped exactly like you say. "Except—" He paused to frown. "Except for that high dome. It wasn't bright or shining at all. It was black as midnight."

"Just so it's there." I was trying to climb out of bed. "Now the tachyon ships will come—"

"Not for us they won't." He sank back against the pillows. "Because that terminal don't belong to no friends of ours."

I had to wait while a nurse sprayed his sadly damaged feet. Then he went on with his tantalizing story.

"I was Tom Fool Lucky in a way," he said. "The plane came down dead, but the ejection gear did kick me out before the crash. All I got was a twisted ankle and a few cracked ribs. Not bad, considering the rocky arroyo I came down in.

"I scrabbled around in the wreckage, but I never found my survival kit. The desert got hot and my ankle swelled and I began to wonder how lucky I really was. But when I climbed out of the gully I could see that tower. Taller than the clouds!

"I waited till sundown, afraid it might be a mirage. But it stayed

there. The sun blazed on it, long after the desert was dark. Mister, it was something! Golden up high where the sun still struck, with zones of red and purple slowly climbing out of the night around me. I never imagined the towers of heaven quite so beautiful.

"I made a sort of crutch out of parts from my ejection shell. When dawn came I started toward the tower. The top of it was already blazing before day came, gold and rose-colored under that dead black dome.

"It looked about a mile off when I set out. I hobbled along till sundown and it still looked a mile away. By that time my tongue was thick and my ankle was killing me and the tower didn't seem so pretty any longer.

"I hadn't seen a sign of a human being anywhere, or even any animal bigger than a packrat. I guess the fallout from Skygate got most of the larger life. It may have been still active—I had no meter for it. That next day might have been my last if I hadn't stumbled into the old Albuquerque road.

"There wasn't any traffic. Hadn't been, for a long time. Rocks washed into the highway dips. One funny thing—all the bridges had been taken out. I was still sane enough to wonder why. I limped on till I came to the old Dos Lobos trading post.

"I used to stop there on vacation trips, but I barely recognized it now. Everything metal was gone. Signs and gas pumps and the tin roof off the buildings. Even the junk cars piled up behind the garage.

"Rain had begun to crumble the 'dobe walls, but I dug in the dried mud with my crutch till I uncovered a bottle of apple cider. That saved my life. I sipped and slept all night—and dreamed about people with golden wings letting me into that tower, like old Saint Pete admitting the children of God.

"In the morning I dug again. Most of the metal cans were gone or rusted through and rain and rats had spoiled a lot of the rest, but I found three more cases of cider and enough other stuff still good in glass and plastic.

"I stayed there at the 'dobe walls, lying in the shade at noon and watching that tower the rest of the day, till I could leave the crutch and carry a pack. I walked on, then, following the old pavement and climbing through the dry canyons where the bridges were missing.

"A half-moon was out the night I came to the mesa. Feeling too eager to stop, I climbed the old mesa road by moonlight. The moon was low when I got to the rim—but there it was.

"The foot of it was still a mile or two away, but that black dome was lost in the stars. I got a crick in my neck, looking up at it. Mister, I wish I could tell you how I felt.

Crazy with wonder, but somehow afraid—"

At that point the nurse came back. She told Carter he was getting too tired. Though he protested, she turned his pillow and lowered his bed and snapped her sleeper gun at his head. Next day, after his feet were sprayed, I begged him to go on.

"YOU ain't laughing at me, mister?" He squinted suspiciously through his wild black beard and his chalky facial dressings. "You don't think I'm nuts?"

"I knew the moon kids," I assured him. "I watched them working two years on the plans for that terminal, hoping COSMOS would build it. I hope—I hope it's real."

"It's plenty real." He punched the button to raise his bed and sat glaring strangely at me. "But the builders ain't human," he muttered. "They ain't setting it up for us."

I waited uneasily till he went on.

"They were working overtime the night I got there. I couldn't see much, because the moon was nearly down by then. But I could hear—" one bandaged hand made a hesitant groping motion—"a sort of humming whine like a million dentists drilling. Or a billion hives of bees. Then there was a kind of booming beat, deep and slow, like the biggest drum that ever was.

"I dropped my pack at the mesa rim and started toward the tower. But I didn't get far. I began to wonder why those workers used no lights. And why I heard no human voices. Then the wind must have changed, because I caught an odor that choked me. A scent like burning sulfur.

"All that was too much. I picked up my pack and scuttled down the road to a sort of shallow cave I had passed. I crawled in there to hide. It was cold, but I couldn't risk a fire. Finally I shivered myself to sleep.

"Something woke me about sunup. Something crawling on my chest. I batted it away before my eyes were open. It had a cold metal feel. I heard a whine and smelled sulfur and saw it hovering over my head.

"A damn mechanical ant! I'd seen news pictures, but still the thing shook me up. That blind six-sided head, watching me with no eyes to watch with. The legs of it like a bunch of thin wire snakes—coiled around the coins and keys it had stolen out of my pocket. Even the class ring off my finger!

"It watched me for maybe half a minute before it sailed away with the loot. I was sick after it left. Lost my supper and what little strength I had. But finally, after an hour or two, I nerved myself to climb back to the rim for another look.

"The tower wasn't heaven to me now." Carter shivered under his

sheet. "It looked more like the gate to hell—with all those metal ants for junior demons. They were swarming as far as I could see, swirling like dark clouds all around the bottom of the tower.

"Near me, so close I could see their flat bright heads and their black tail-balls, they came and went from a metal-rimmed pit. In one stream they brought materials—hundreds of them clinging to a rusty ingot or a mass of ore or a scrap of junk that might have come from my own spaceplane. In another stream they came out with fabricated parts they carried to the tower. Bright metal and big white blocks. Their noise shook the rocks under me and their hot reek burned my eyes. They're building an ant hill—into the stratosphere.

"Standing there, I forgot to be frightened, till one of them came whining around my head. I was afraid it wanted my gold tooth. When it flew back to the pit I turned and ran. Nothing followed me—but I nearly died getting out."

Carter sighed as if still exhausted.

"I wandered out of the desert and over the mountains and all the way back. The ants had scavanged all the metal everywhere and I never saw a human being. Water and food were hard to find. After my shoes wore out I had to tear up my clothes for bandages—that's how I got cooked with the sun. I was nearly back to Oklahoma when the militia scouts picked me up.

"That's it, mister." He sat up, glaring fiercely through his chalky mask. "The militia don't believe me and I ain't got no proof. The snakes have downed our last airplane. But that tower's standing there where Skygate was. Taller than the clouds! I ain't no liar, mister."

"I'm sure you aren't," I said.

But suddenly I wasn't sure. Something about his angry challenge made me think of Yuri Marko, who had once been just as positive that he had found a transgalactic terminal on the moon.

XVII

WITH new skin grown on his feet, Clayton Carter went back to his militia unit. He wanted to lead a mounted party west. Neither the snakes nor the ants, he thought, would interfere with horses. He hoped to photograph the terminal and perhaps to try communicating with the ants, but I never learned what became of him.

The next man beside me lay three days in a heal-sleep tent.

"His name's Ballou," old Andy Elving told me. "He's got friends. They brought him on a horse cart from back east and threatened to burn the hospital if Doc Narasimachar wouldn't take him in ahead of the war refugees that are dying in the streets."

"A space case?"

"Some woman carved him up. Slashed his face and stabbed him in the gut. He came in with peritonitis and it took some fancy surgery to save him."

Awake, Ballou was an angular waspish man with thick dark hair and a complaining nasal whine. He fumed when the doctor hurt his face, peeling off the bandages, and demanded a mirror to inspect himself.

"Look what you've done to me!" He fingered the forked blue seam across his cheek. "I used to be a fine-lookin' man. Folks said I coulda been a trivee star. Now look what a fright you've made of me." He threw the mirror at the doctor. "You clumsy bastard vet!"

Narasimachar ducked the mirror, which shattered on the floor. My blood had failed to stop the gamma-life teeming in his flesh and his worsening palsy had in fact begun to spoil his surgery. I saw the stifled fury on his dark face and the way he clutched his gaunt hands together to stop their shaking. He stalked out silently.

"Call him back," Ballou snarled at the nurse. "I won't be insulted. Not by any pill-pushing quack. I'll have you know I'm somebody. We're the Fairfax Ballous. I guess you've heard of us."

"I've heard plenty."

The nurse whisked out and he turned fretfully to me.

"I'm Spiro Ballou." An ingratiating smile twitched across the unscarred half of his face. "Call me Spike. Back in Fairfax, I was somebody. People didn't insult me there. Not twice!"

I was about to introduce myself, but his plaintive voice ran on, quivering with self-pity now.

"All this crap is hard for me to take, because of who I was. My old man was president of the Fairfax National Bank and chairman of the board of Fairball Industries. He owned the best half of the town. When I married he bought me the Poppy-Cola franchise for a wedding present. But look at me now."

He sniffled and fingered his scar.

"My wife was Billie Fran—the sexiest doll in town. I had four acres out in Faircrest. An eight-room home of hand-laid brick. I drove a Cadillac Hydrocat and traded twice a year. I thought I had everything till the Moon King came along—"

"The Moon King?" I had been thoroughly bored with Spike Ballou, but that jolted me awake. "Who's the Moon King?"

"You remember the Moon Kids? Two cute little scamps and one like a hairy bear? There used to be Moon Kid dolls, Moon Kid toys and Moon Kid picture books—"

I said I remembered the moon children.

"People sort of turned against 'em as I grew up. I guess just because space didn't mean fun and games any more, after we got into

the other biocosms. Anyhow, a couple of years ago this animal type ran off with what he calls the moon jewel—"

"Have you seen it?" I interrupted him. "A glowing pyramid—"

"Billie Fran saw it." Rancor growed in his throat. "Most of the women in Fairfax did. But he never showed it to me. He don't take to men."

"IS GUY—" I caught myself. "Is this jewel in Fairfax now?"

"It sure is." Ballou nodded bitterly. "I hear he stores it in the vault of my old man's bank. Billie Fran says it keeps the space things out of Fairfax. The killer fog and the flying snakes and them iron-eating ants. She thinks it cures the space diseases."

"This moon boy has it?"

"He ain't no boy. Big as a grizzly. But he come to Fairfax with the jewel a couple of years ago. About the time the world began to fall apart. Only I didn't know him then. One that did was Billie Fran. My own wife—"

Ballou gritted his teeth.

"That was when she turned cold to me. If you can imagine—" He choked with indignation, as if he couldn't imagine. "They were slick enough. It was just lately anybody found out about 'em. My wife—and that hairy beast! They should have been buried alive."

He sat up in bed, breathing hard and glaring at a nurse who had stopped to listen at the door until at last she sniffed and disappeared. He lay back to get his breath.

"Seems the moon thing come into the country with some circus. Like the animal freak he is. Billed as the Siberian talking bear. One night a college professor got to asking questions he didn't like. He smashed the guy's face against the bars and broke out of his cage before the cops got there.

"That was off in another town. He slipped into Fairfax through the woods. Dressed in a floppy hat and an old rain cape to make like a human hobo, he was working the alleys, begging for food. I must have been playing gin at the country club that day. Anyhow, Billie Fran was home alone."

Rage seethed in him.

"I guess she let him into the kitchen first. She filled him up with a roast and potatoes she'd been cooking for me. She never told me all they did, but finally she put him in the little apartment behind the garage, where her old lady stayed till she died. She kept him there—if you can picture that!

"How could she do it?" He blinked at me, his glaring fury clouded with a dim bewilderment. "A sweet girl like Billy Fran—singing in the Presbyterian choir and teaching the toddler's Sunday school class and crying like a baby every time she found a spot of lipstick on my shirt. How could any

woman love that circus freak? When she had me?"

I didn't try to answer.

"She kept him there the best part of a year before I ever knew. But she wasn't the only one he had." A sullen amazement slowed his voice. "I guess it was the cleaning woman, first. Then her Thursday bridge luncheon. Then her Sunday school class—the young married women." He grimaced with a certain bitter smugness. "So I wasn't the only sucker."

I couldn't help asking how he found the moon child.

"Billie was just too damned happy." He scowled savagely. "Too damned healthy. Too damned beautiful. Like she had discovered the fountain of life. Her sinusitis cleared up. She was singing to herself all the time. Doing little things to please me. She tried to cook what I liked and she saved out of the house allowance to buy a new shockproof chronoscope I wanted for my birthday. And she quit nagging when I come in late. Things like that made me wonder, but then a stranger tipped me off.

"A fat black little guy with a hook nose and a bad odor. When he first come out to the Poppy-Cola plant I thought he was a federal nark. But it turns out he don't care how we spike the stuff. He's a private eye, hired to find the moon jewel."

"Huh?" I had begun to wonder how my missing brother would fit into the picture. "Was his name Tom Hood?"

"THE name he gave us was Todhunter Hoke." Ballou peered at me sharply. "He knew all about that educated Siberian bear and he'd talked to that bunged-up college professor. He snooped around till he located that moon beast and his harem.

"I saw red when he told me about Billie Fran. I tried to hit him, but he ducked away and tossed me a picture of her and the beast. He'd bugged the room, too, and he played me a tape that made me sick. That beast and Billie Fran making love and laughing at me!"

Ballou sat silent for a moment, his scarred face dark and twitching.

"Hoke called a bunch of us together. My golf and poker buddies—that hairy brute had all our wives." His stifled voice was hoarse with hate. "I wanted to catch him and burn him alive, but Hoke said he'd be too hard for us to handle.

"So finally we called in the law. My uncle was the chief of police and the county sheriff had a note at the bank, so we got cooperation. We closed in on that garage apartment with twenty men in six cars. I had buckshot in a pump gun and I meant to gut-shoot the beast. But he got away." Ballou writhed with frustration. "Somebody yelled that he was running into the woods

behind the barbecue. We all dashed in like fools. Shooting started down in the brush by the creek, but when we got to the dead man he was just a deputy sheriff.

"That beast had out-foxed us—them damfool women musta tipped him off. Our cars had been rolled over and set on fire before we got outa the woods. And all that was just for openers—"

Perhaps I had smiled, because he stopped to glare at me.

"It ain't no joke," he whined angrily. "Not to none of us. Nor to them women, when our turn comes. We'll make them sluts hate the day they ever saw that stinkin' brute."

"It's more than a joke," I agreed. "Did you ever catch the moon man?"

"Not yet. Nor many of his crazy bitches, either. The sheriff tried to round up all the women and get 'em out of town. He swore us into a special posse and sent us up and down the streets, but all we caught was a handful of little girls and smooth-mouthed grannies. All the rest was hiding or shooting at us.

"That hunt went on all day. A dozen men was hurt or killed in a shootout at the city park. The sheriff got hit in an ambush down by the bottling plant. A big fire was set on Main Street while we were outa town.

"We had 'em surrounded once in the Red Raven tavern, out on the airport road. The police tossed riot bombs into the place and went in shooting. But that brute was too much for 'em. He breathed the gas and took the bullets and used the chief like a club to smash his way out. A hairy devil! Big as a Brahma bull.

"And them women—you can't imagine what he's done to them! Most of 'em pregnant. Blown up with their own baby beasts. But that don't slow 'em down. I seen the Presbyterian pastor thrown outa the tavern through a plate glass window by his own young daughter.

"By night they was hunting us. Gangs of them hot bitches took the court house and the city hall and the militia armory. They sniped at us from the water tower and the elevators and the roof of my old man's bank. They run us out of town."

Ballou lay back and closed his eyes, wheezing for his breath as if defeated all over again by the violence of his own narrative.

"Run us out—and kept us out. They burned the bridges. Piled up wrecked cars for road blocks. Posted snipers in trees and silos. Them crazy women and their hairy stud—that's why we call him the Moon King."

"So he's still there?"

"The gov'ment ain't about to help us catch him—not when they're busy losing the space war. The militia's been trying to fight a patch of killer fog spreading over

Lake Ballou. So Hoke helped us organize our own mounted patrol.

"I'm the captain, of course. We forded the river early one morning and slipped down through the woods where the snipers couldn't spot us. We surprised three women picking beans in a little garden patch. They yelled and ran, but we caught one of 'em.

"Billie Fran—about to bust with her own monster-baby. Her second kid by him—she never wanted none of mine. We took her back to camp. She wouldn't talk at first, but she opened up when Hoke got hold of her. She told us all about that brute and the moon jewel—how they keep it in the bank vault while he sleeps once a week, two or three days at a time.

"I felt sorry for her when Hoke got through—what a fool I was!" Ballou's quivering fingertips explored his scar. "I was guarding her that night, in the barn where we was camped. Somehow she got untied and come at me with a rusty old gelding knife she musta found under the hay. She cut me up and got away on our best horse.

"That's how come me here—and I like to died on the road. But we ain't through. Hoke's setting up another raid right now, but he'll wait for me to lead it. He's overhauling a broke-down army tank the militia left when they run away from the lake. We're going in with that on a day when the Moon King's asleep. I don't think them bitches know how to stop a tank—"

"Nap time, Mr. Ballou!"

He glowered at the bustling nurse as if she had been one of Guy's girls. Smiling sweetly, she smoothed his sheets and read his monitors and spread his tent for another heal-sleep treatment.

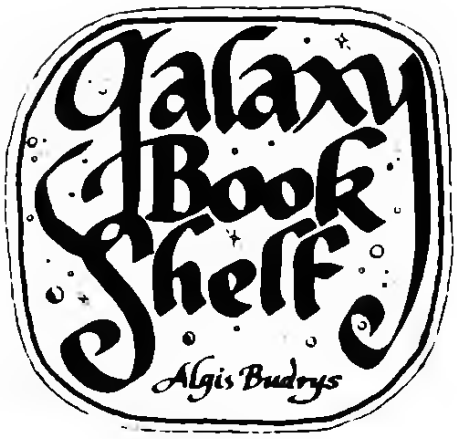
Three of his commandoes came to pick him up when he was discharged. They were brown sullen men, bristling with knives and guns. The tank had been checked out, one of them said, and Hoke was figuring the days when the Moon King would be asleep. If the hairy bastard ever woke up, he'd learn he'd lost his marbles.

TO BE CONCLUDED

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IF

The Magazine of Alternatives



POSSIBLY I've lived too much. Possibly I only think I have. But whichever it is, less and less am I able to believe in mass fiction as a vehicle of use-ready social ideas. In the arena of contending social values, there are sharper lances. Where fiction has sparked immediate social action, as with the young Upton Sinclair, it has more closely resembled documentation. Even then, its effect seems to be in inverse proportion to the size of its target. Even so, we have polluters and exploiters with us yet, long after Sinclair turned to Lanny Budd for solace. The basic system, some few of whose gallery of symptoms drew Sinclair's ire, persists.

The value of science fiction—a philosophical, speculative vehicle by definition—cannot be even as immediately effective as that of the muckraking contemporary *roman a clef*. Science fiction is almost inescapably a vehicle for ideas whose time has not come.

This doesn't and shouldn't prevent people from trying to make something else of it. Inevitably, one of them will find a way. But it does make the odds quite heavy against any given individual's success in producing anything socially deeper than what we already know. And unfortunately we are beset with people who sincerely believe that to say anything above the conventional level of mediocrity is to explore territory never before beheld by man or artist. These appear to be people who have not yet realized that conventional mediocrity is a proven effective survival mechanism for the individual, if not for the mass, and quite often a consciously thought and devotedly cultivated mechanism which no trumpery concoction of the tale-teller's art can hope to disarm. It is to be remembered that the itinerant unthreaded-pipe salesman knows he has seen a good deal more of the world than the garret genius. It is to be considered that if he has scales on his eyes, perhaps it is because of the scars on his back, and elsewhere.

Now, I may be wrong. But more and more do I feel that our bigger thinkers are whistling up their spouts, and I think perhaps I know why. More and more often as I accumulate abrasions in the course of nurturing mine own torch amidst the nighted palisades of life do I crave a plain tale plainly told. I do my own damned expert agonizing. What I need from a storyteller is some convincing hint that it's not all for nothing.

The interesting thing about a well-told story for adults is that it requires more experience of life, and more closely observed experience, than do the comparatively easy "heavy" novels whose frequent nature as a formless outcry of one undistinguished ego is disguised behind a hastily worked screen of experimental technique or a dull mask of deliberate pedestrianism.

Full appreciation of a hero's hard

knocks requires a battered context of one's own. *The Maltese Falcon* will not work on an innocent reader. Neither will *Nerves* nor *The Invisible Man*. Some *approximation* of them will work on children—it's possible to make Universal movies of all of them. But it would shake you to your innocent boots what John Huston could have done with H.G. Wells if he hadn't found Dashiell Hammett first. The stuff is there, and it is not for children. Not children only, at any rate.

And that brings me to this column's books. None of them are destined for immortality. None is without flaw. But it was reading them, and enjoying some of their passages immoderately, that led me to wonder what is wrong, that Keith Laumer should please me more than Tom Disch. I reached the conclusion that perhaps there is more to it than simple right and wrong.

LAUMER'S *The Other Side of Time* (Walker & Co., $4.95), for instance, is nothing but an adventure story set in his parallel-universe series, in which Brion Bayard—a figure straight out of John Buchan—strives to prevent the Zero-Zero universe from being snuffed out. The vehicle of extinction in this case is a shambling race of beastmen called the Hagroon who—unlikely though it sounds—have access to the same scientific principles which enable the Zero-Zero Imperium to operate across alternate timetracks. To defeat them, Bayard must first ally himself with yet another timetracking race from a universe in which the ancestors of *Homo Sapiens* did not win out over the other simians, then must homebuild an orangecrate vehicle after being marooned in a technologically backward universe.

Incidental to all this, he also discovers, or, rather, blunders into, genuine time travel, plus a curious zero-time "in between" condition which Laumer never does quite rationalize.

This we call piling Pelion on Ossa, painting the lily and throwing in the kitchen sink. Just as Brion Bayard becomes a helpless victim of circumstances throughout much of this narrative, so does Laumer, in trying to make the story work out so that it sustains excitement and teems with individually attractive scenes, find himself having to make his sincere, courageous hero an impulsive dolt.

In addition, Bayard's escape from his marooning specifically depends on the supposition that the two human discoverers of the time-tracking principle must have existed, and at least done some preliminary tinkering, even in a 20th Century ruled by Napoleon the Fifth in his best 19th Century manner. It's then bad logical structure to confer time-tracking on the Hagroon and on the non-human simians of Xonijeel. On the one hand, you are using exclusivity as a rationale; on the other, you are promoting universality.

BUT, although I can't say you won't notice this, or care, while reading the book, the inescapable fact is that the thing is fun to read. On the one level, there's the old "How's he going to get out of this one?" syndrome to keep you turning the pages. On a perhaps deeper level, there's a recognition of the fact that the hero has a realistic problem. Bayard's true adversaries are not the Hagroon; they're a comparatively simple business to deal with; all you have to do is swing a big

enough gun into position. That's a purely executive matter. But what gums up the gears is the interference of the sincere, noble, enlightened simians, who would like to see an orderly, peaceful universe—based of course on their own zero-zero coordinates. That is called Dealing With Management, and let me tell you, Laumer makes it poignant.

You will notice this is not a Big Think. But is something many of us can identify with. For most of us, personal experience with external and domestic politics is limited. Urban renewal, equal opportunity, pollution, overpopulation, and Amtrak are not things we grapple with. We grapple with people whose actions thwart us, whatever they may say or believe. We grapple with city employees who'd rather see us throw the bundled newspaper into the incinerator than stick it in the recycling collection bin. We all want to get rid of the garbage, but how about the tax-paid refuse yard man who deliberately breaks your turned-in glass under the tires of your truck?

All right, so his desire to have the yard run in its God-intended age-long manner outweighs his desire to live on a clean earth. Is there that much difference between his desire to do things his way and my desire to do things mine?

It's the collision between these identical traits that breaks the glass—and it's this level of problem that the adventure tale deals with. Committees for The Good don't punch each other on the nose; people do. And it's people who wince away from the next upraised fist and who, even in the midst of not listening to some chairman's drone, find their minds drifting back to some thirty-years-past schoolyard confrontation and sit upright.

Am I getting too far afield, and investing too much importance in a piece of thud-and-blunder? Perhaps. But why has the action story always been with us? Surely, you'd think grown people wouldn't be interested in what appears to be a totally childish form.

Let's take a look at *Tactics of Mistake*, by Gordon R. Dickson (Doubleday, $4.95). (It's all $4.95 these days. No wonder they have to dump them as soon as they're in the stores).

Tactics of Mistake is tangential to Dickson's Dorsai series. In it, Cletus Grahame—a light colonel, as distinguished from Brion Bayard, who's a full bird—lays down one card after another in a sequence demonstrating that By God a junior executive can (A) outperform Management and (B) start his own wildly successful company. In a Dorsai novel, where war is treated as business, the analogy's not far-fetched at all.

Superficially Grahame follows out that story which Randall Garrett says begins with:

"You'll find things are a lot different out here, Lieutenant," and ends with "I guess I must have misjudged you, sir."

Resigning his instructor's post at the Western Alliance Military Academy, Grahame gets himself assigned as a tactical specialist on an obscure little world where they seem to be fighting the Indochina war all over again. In short order he whips that one, then applies for Dorsai citizenship, retrains the Dorsai into an effective fighting force (!), and restructures the entire political nature of the human universe. He also gets the girl,

who seems no prize to me, seeing as one day she hates him, next day marries him, next day hates him, fourth day . . . Well, you get the idea Dickson was going to go back into the manuscript and fill out some motivation here, but realized his book was growing out of hand already. And it is. I haven't even told you about his Magic Knee and what that leads to.

Yet, again, here was a book I couldn't put down. I was Dealing With Management myself at the time and badly needed the sleep, but I spent it on this story instead.

One of the alternative explanations is that I'm getting soft in the head—forsaking the perceptive clarity of my youth, hardening my heart to the Important Things of the World, taking delight in depictions of agony and death. Would it help if you knew I've seen a little agony and death—and had a little knee trouble, too—and I stopped grinning over them some time ago? I mean, I *know* what it feels like when Jerry flattens Tom's face with a two-by-four. And I'll bet you do, too. Perhaps, somehow, that's why we get something meaningful out of battle scenes.

Dickson's a more thoughtful writer than Laumer, by some slight margin. That is to say, he cogitates more visibly than Colonel Laumer does. There is more intellectual texture to *Tactics of Mistake* than there is to *The Other Side of Time*, just as there is far more in books by Nevil Shute, C.S. Forrester, or Robert Heinlein. But they are cut of the same cloth—taking the Heinlein of the thirty years beginning in the 1940s—and there is no denying the power of this kind of storytelling, for all that logical analysis yields some stuff that can sound either ludicrous or gamy. The inside of the human mind is like that; the top layers of the brain, though they speak, do not represent the majority. Perhaps we shouldn't be that way—but can we talk ourselves into some new condition? Not likely; the part that speaks is not the part that eats.

Of the three books reviewed here, Laumer's *The Star Treasure* (Putnam, $4.95), is simplest and weakest.

(Libraries get a heavy discount. Few of these books ever sell at the jacket price. Would a publisher care to try a drop in the retail price and a reduction in the discount to libraries? Probably not. Yet it might get more copies into the hands of the civilians, all of whom are potential buyers for other books listed on the jacket-back by the same publisher).

(So much for dreaming).

Weak though it is— *deus* descends *ex machina* finally to drive the truth through Ban Tarleton's thick skull—there's still a little of the good stuff here. There's a lot of razzle-dazzle about how the Star Lords run the Companies that eat off the happy Public, which you can discard. Essentially, Tarleton is the Man Who Doesn't Know He Has The Secret, and has to keep dodging thunderbolts until it all dawns on him and he gets the Power. It's hard to live with a dumb cluck like that, and most of us know we don't have any Secret. But what Laumer apparently thought he was writing was the story about the man who Gets Handed the Package, and that's a good one. All of us know that someday we'll get handed The Package by the mysterious blonde on the train to South Bend and then we'll tell the boss to Go Scroo. Or we know we hope for it, and that's close enough for comfort. ★

DUNCAN LUNAN

GALILEAN PROBLEM

NOVELETTE

In Jupiter's gravity deeps, McKay had two choices: find his friend or lose himself!

THREE alien ships towered in the sunlight on the Montana spacefield. Sharply swept fins tapering from near the nose gave each a triangular silhouette. It was unusual to see all three here at once, for their visits to Earth were staggered. They were the supply ships of an expedition opening up the moons of Jupiter for commercial exploitation.

One of the ships was leaving. Sirens howled across the field; everyone on the base was under cover; shutters were lowered over the control tower windows, not to protect the personnel in the unlikely event of a fusion explosion but to preserve the glass during a routine takeoff. Water began to cascade through the flame deflector of the launch pad.

Through the tower periscope McKay saw the chemical motors ignite. The ship pushed up slowly, driving out steam around it for the few feet that saved the pad from evaporation– then the fusion motors fired at primary boost. Almost hidden in blue-white glare the ship lifted, faster than McKay could follow it, into the clear sky.

A mile up, with the shutters raised again, he could track it with binoculars, though the flame was still painfully bright. The freighter was tilting now, its trajectory carrying it into the Interface corridor specified in relation to the field.

Interface opened like a great black disk ahead of the ship. McKay was looking through a hole in the sky a half-mile across, not just out into space but into the very vicinity of Jupiter. The glare from the idling motors was still too bright for him to see stars and, to his disappointment, the Interface was not pointing toward Jupiter itself. The ship coasted up into the disk, its exhaust suddenly splaying out, and the blue sky smoothed over behind it. Any two places each less than ten thousand miles from an Interface relay could be linked directly by air; a whole extraterrestrial race, the Fallaran, had dedicated themselves to enlarging the Interface net. It cost them slow sublight journeys to new stars. Earth's sun was one of the newest to be reached.

"That's a better show than your

ship usually gives us," the station commander remarked. "When are you going out there yourself?"

"Another couple of days," said McKay, putting the binoculars away. "When Cathy Devlin gets back from the Geneva conference."

"That's not going well, I hear."

"There's a lot of frustration," McKay agreed. "It's the same old problem: all our dealings with Interface civilizations, of whatever kind, are channeled through the military format of the U.N. Committee for Earth's Defense. The aliens definitely want a change—so do most of the governments and private concerns trying to deal with them."

"You can't blame the committee for keeping tight control," said the commander. "Earth was attacked from space and the Solar System was forcibly occupied by the Sasarenn not long ago. I've never been sorry I wasn't in command here then. Has anything been heard recently of the Sasarenn and their war fleet?"

McKay shook his head. "Nothing, I'm glad to say. Since they don't have Interface or faster-than-light drive it'll take them a hundred years to get here if they do decide to harass the Interface again."

Though the occupation against the Fallaran had been a time of great danger, Earth had come out of it relatively well. When the Furtherance, the Interface survey fleet, threw the Sasarenn out, Earth was left with McKay as the recognized Planetary Agent and one versatile spaceship, the Sasarenn Recovery and Liaison Vehicle he still flew. Other planets, he knew, had suffered heavily in the Sasarenn-Interface conflict.

"And the earlier attackers? The Al Tanrai?"

"Nothing so far, though the Furtherance are still moving into what the Al Tanrai claim is their space. Since the Furtherance ships themselves are sub-light, it's not surprising they haven't met again yet. But the Al Tanrai worry me: they do have FTL ships, they know Earth's location and they know we've joined the Interface. I'm sure they'll be back."

"All good grounds," said the commander, "for leaving space affairs with the Committee for Earth's Defense."

"But an increasing headache for me," McKay replied as they left the tower. "Now there's a permanent base on Io, I have to get out there again and see that Earth's interests are properly represented. That's not a military problem—or a flying one —and I've no training for this kind of thing."

"And worst of all, being a military man yourself, you can't tell them where to put their job." The commander grinned sympathetically. "We all have that trouble at times."

"Sure—"

McKay left the tower a short time later and turned toward the RLV hangar. As he crossed the tarmac his thoughts dwelt on the most tangible hold the job had on him—the communications relay forcibly implanted in his skull by the Sasarenn tied the ship and the Planetary Agent status inescapably to his own personality. Whether or not his training equipped him for his present task, there was no other job he could hold—the implantation in his brain made him captive.

THEY gathered at the ship in the early morning: McKay, Slazeck, Devlin and Cathy, her U.N. uniform changed for RLV flight overalls. McKay didn't like having both Devlins along—a husband-and-wife team introduced an unpredictable dimension to an already hazardous mission—but Cathy had proved herself many times over on previous missions. They took their places in the cockpit and cabin and McKay took the ship up on its VTOL jets.

Plugged in to the perception circuits of the RLV, the pilot had all-around vision and full display from the ship's sensors and computer-autopilot. The display in McKay's brain traced out the Interface corridor, catching the ship in a web of position fixes on the Interface relay in orbit overhead. McKay fed in the specifications for this side—zero groundspeed, altitude 6,000 feet, gaseous diffusion nil—and for the other side: stable orbit two hundred miles above Callisto, the expedition's emergence corridor. The trackers were locked on the relay satellite.

"Up Interface—" said McKay to the computer-autopilot.

Seen from the ground, Interface was impressive; close up, if you had time to watch, it was an outstanding spectacle. A great circular window stood open in the Montana sky—open into the cold brilliance of the Jovian system. The RLV flew straight and level into it, the wings and air intakes folding back to the delta configuration as the last puffs of air crystallized astern. The computer made a flash position check on the Callisto relay and was satisfied; behind them Earth's sky was brushed away.

They were in shadow; Jupiter and the other moons were in two-thirds phase. Away from the planet a silent spread of stars filled the sky. The sudden transition to weightlessness brought its usual touch of elation.

"That's absolutely beautiful," Cathy said from behind McKay in the cabin.

"Ships in the offing," Slazeck said quietly from in the co-pilot's couch.

"I see them." McKay was alert, but not yet tensed up. He hadn't

expected to find the expedition here. When he flashed a recognition pulse and got no answer he began to feel taut.

"What's wrong?" Cathy was sensitive to changes of psychological atmosphere in the RLV.

"Unknown ships ahead. There's no visual sighting—you'll have to plug in to radar."

"I've got them. Who do you think they are?"

"Can't tell, honey. They're big ships, though, in the emergence orbit—thirteen of them. That could mean something. The Furtherance group their ships by prime numbers, don't they?"

"Thirteen Futherance ships would be a fighting unit," said Slazeck. "Have you heard any hints of trouble?"

"Not a thing. I don't think we'll hurry to close up."

McKay was slowly overtaking the drifting ships. He calculated the RLV would be back in sunlight before reaching the others. He could make his ship radar-invisible, but it seemed too late to make use of that precaution. There was still no reply to their continuing electronic challenge, however, and as orbital sunrise drew nearer McKay went on the alert, sending a camera probe ahead.

"They look like Furtherance ships," said Devlin.

"The Sasarenn used much the same design." The tapered cylinder, with wrap-around motor bulges, could well be the basic layout for all space warships.

"Furtherance markings," Devlin reported.

"And still no radio contact, not even automatic identification. I don't much care for this."

"I have direct visual sighting, Mac. We'll overhaul them ourselves in five minutes."

McKay thought hard. "All right, we'll let that happen. This is a rescue ship, after all. Go to full combat alert."

EXTRA radiation shielding deployed, sealing off the cockpit and cabin. Acceleration shields closed over the occupants, isolating each in what could become an escape capsule. They were traveling tail first toward the formation, since McKay had slowed up slightly from the probe. Silently the RLV came on, backward and—McKay realized from the markings—upside down. In space it made no difference. There was still no reaction, not even a laser flash, as they passed between the ships.

"The one to our starboard, Mac—that's the *Darni,* Kiliath's new ship."

McKay recognized the red crest on the hull. Kiliath, Earth's oldest Furtherance contact, had only recently gained his own command and had paid a goodwill visit to Terra.

Rendezvous maneuver had been preset—"Implement," McKay told the ship, and a burst from the RLV's chemical motors matched the orbits.

The RLV's search devices, now fully deployed on their out-of-atmosphere booms, were finding nothing unusual about the dormant ships themselves—but bioscan, despite the hull shielding, was picking up definite traces from the *Darni*. McKay made a long, detailed scan of it while the ships hung in the pinhead sunlight and the moon's face turned slowly past.

"Something odd there," he said. "It's as if there were spots of life, shading off into nothing, on the outer hull of the ship. Any theories?"

"None at all, Mac," said Slazeck after a pause. "But we've got about forty minutes of sunlight if we want to make closer checks."

"We'll leave the RLV out here," McKay said firmly. "Whatever's wrong, it's affected all the ships in the formation. I'll take a sled over there and go in through the lock. Walt, you're in command. Dev, come with me."

They could have separated their capsules from the ship's life-support and made the crossing in them, but McKay wanted more freedom of action. Reopening the radiation bulkheads, he and Devlin made their way to the RLV lock, put on full spacesuits, then deployed two unused couch-sled units from the cabin. McKay never got over his admiration for this part of the RLV design: G-couch, stretcher unit, airsled, ejection capsule all in a single system. They depressurized the airlock, lowered the outer door and worked around it to walk up the hull to the rescue hatches. Casting off the sleds, they moved on compressed-air jets toward the warship. They kept the shielding open—since they were in full suits—and crossed to the *Darni* without incident.

McKay wouldn't have risked a guess as to whether they could get in or not, but the *Darni's* airlock opened first time. They moored the sleds, went through the lock—and found themselves facing three Fallaran crewmen with guns.

Beyond doubt they meant business. They were anchored firmly against recoil in zero-G; their weapons weren't heavy enough to do structural damage to the ship and, after they took aim, there wasn't a tremor of movement. Moving slowly, McKay opened up his helmet faceplate.

"Good morning," he said. "Where's Kiliath?"

HIS suit radio was on—to link with the ship's computer translation—but all he heard in reply was a rumble of Fallaran speech. On the radio there was nothing.

This was going to be difficult—what the hell could be wrong? He

couldn't say offhand if he'd met these crewmen before. The Fallaran were high-gravity humanoids with gray, wrinkled skin and brilliant eyes. To tell them apart was not easy—but these three didn't seem to recognize him.

"McKay," he said forcefully. "Where's Kiliath?"

Talking naturally to the Fallaran was difficult: the aliens were quiet-spoken and their natural range of speech and hearing fell somewhat below the human voice. As far as McKay could see, they hadn't recognized his or their own captain's names; but an officer who did know McKay finally came padding in grip shoes down the spiral steps from the control deck—and the guns were turned aside.

McKay began to wish he had brought Cathy over; she had found time to learn some of the Fallaran language. The officer hauled McKay over to a control terminal and indicated he should "plug in." Doing so, fading out the scene around him, McKay found an extraordinary situation. The perception circuits of the Furtherance ships were essentially similar to the RLV's—he should have been able to study the full field of view outside, read off the ship's course and position, make a full systems check—he experienced nothing. It was as if the "consciousness" functions of the ship's brain had been knocked out. The only readouts he could get were for routine internal functions, such as life-support. All sensors outside the hull—and most of the "thinking" part of the machine they served—gave no response. Vital functions like navigation and attitude control were completely paralyzed—in short, the great warship, the machine itself, was asleep.

McKay let go the terminal and blinked back to reality. This had to be connected with the odd bioscan impressions on the hull of the *Darni*, which its own instruments couldn't detect. He turned to the officer, pointed to his spacesuit, then to the airlock. The Fallaran suited up and followed McKay to the outside.

AS SOON as the outer door swung out, they could talk via the RLV's computer. Floating against the scarred ice face of Callisto, the little white ship was still unaffected by whatever had attacked the dreadnaught. Quickly the officer told them, through the flat neutrality of the computer translation, what had happened: a beacon calling for help had come through Interface to the Furtherance HQ at Alpha Centauri. The *Darni* had come to investigate, found the Io expedition under attack by strange ships. Distrusting beacons, unwilling to leave the scene of action in the Jupiter system, Kiliath had sent the *Darni* to

fetch reinforcements—but shortly after the fleet had come through the Callisto Interface the sophisticated brains of the warships had been affected by what could only be called drowsiness. Within minutes, the ships were in effect unconscious.

As he learned all this, McKay was leading the officer toward one of the strange spots on the hull. Though the *Darni* was huge by Earth standards, it wasn't one of the bigger starships—McKay thought of it as in the destroyer class. It didn't have enough mass to pull them effectively to itself and they were using safety lines as they worked their way around. Directed by Slazeck, they came on the thing within minutes.

It didn't look at all fearsome: strange, perhaps, but not something to reduce a fighting ship to paralysis. It was a yellow sphere, smaller than a football, raised from the hull on a thin stalk. The stalk itself seemed to merge into the hull. Looking very closely, McKay found a fine web of filaments, like nerves, radiating out from it across the metal. A cluster of these, like tiny biological mines, had brought the Furtherance fleet to a standstill.

"Combat alert, Mac," Slazeck announced—grim, tense, but controlled. "Four ships in the sun, closing very fast."

"Interception course?"

"Dead on."

McKay didn't hesitate—he had a very good idea by now of what was happening. "Cross it at a hundred miles with all our missiles, spread launch from here. And put two clumps of antis into the line behind them. Open fire."

McKay and the Fallaran watched the missiles go off, each burning a different trail through the formation before flaring at full boost toward the sun. Common sense called them to take cover, but inside the *Darni* they would be cut off. At their very high approach speed—Slazeck made it hundreds of miles a second—the attacking pilots had very little decision time. They might just take the RLV's six missiles for a preliminary salvo from the fleet that should have been quiescent. They shouldn't have time to look for alternatives.

"They've altered course, Mac," said Slazeck, without any detectable relief. "They're passing at three hundred miles, going toward the planet. We must have had a whole second in hand there."

"They very nearly got us," McKay agreed. He was quite unable to cover his own relief. "That speed sounds like FTL drive, right?"

"No Interface relays out where they come from, that's for sure. You think it's the Al Tanrai again?"

"I've a good clue to them right here," said McKay. He turned to

the Furtherance officer. "When we met the Al Tanrai on the planet Sarann they had the technology to bug Interface relays."

"I remember that," said the Fallaran. "I served under Kiliath on that mission also."

"My apologies," said McKay. "Then you know their bugs were organic, or pseudo-organic—a thing like a film of tissue stretched across an Interface and designed to cling to the ship that broke it. This must be something similar: a bug that interacts with the perception circuits, hypnotizes them, you might say. Bioengineering in a further stage."

"The thing seems purely organic," said the officer. "We can burn it off the hull without risk. I shall bring out crewmen with weapons."

"We'll move on," said McKay. "I'll take the ship across to Io—I'll try falling tail first through the Interface with the motor on. If there are any bugs left on this satellite, that should keep us clear."

He was tempted, but for the time it would take, to go after the RLV's missiles and bring them back aboard. Though the Fallaran came from a planet heavier than Earth, they had nothing in common with the Al Tanrai, who had once attacked Earth. The Al Tanrai, literally "the Cosmic Jackals," came from a planet big enough to have a world like Earth for a satellite. When they had attacked McKay on Sarann—one of his first Interface missions—he had shown them no mercy. They were part of the darkness that had fallen on Earth years before. They were a group mind, without individuality; dwellers in methane and ammonia, in great cold and pressure, such as—he took a step up the hull to gaze into the planet's brilliance—such as they would find far down in Jupiter itself.

II

THE plan succeeded from the outset. Approaching the Interface tail first, McKay put a burst of flame into it—and if any pseudo-organic webs were stretched across the invisible disc they were burned away. The ring traced by the electronic display moved over the ship and past, and Jupiter leaped closer in the sky. Io was noticeably more reflective than Callisto, but the overall color difference noted from Earth was harder to detect at close hand. A smooth sheet of ice along the equator, broken by occasional mountains, added to the moon's greater brilliance. Only one of the expedition's big ships was in orbit; the others had touched down at the most promising site for a permanent base.

So far, McKay learned on the radio, the expedition's sensors and computers had not been affected by the enemy. The task force

sat tight, waiting for the Furtherance reinforcements; there had been no more attacks. But Kiliath himself had shown their danger. Could the RLV help?

"That's what we're here for," said McKay. "What's happened to him?"

"He took a shuttle to make reconnaissance," the Fallaran said in the stilted phrasing of computer translation. "He went through Interface to a fast trajectory, a close flyby of Jupiter. He had concealed his ship from radar, but when he emerged from Interface on his new trajectory we detected him at once. However we could not contact him again by radio."

All that made sense. To screen a ship from radar required a complex pulse-interaction with the oncoming beam, something only a computer could handle. With external sensors out nothing could be done. And at the position and velocity Kiliath had set for the other side of his Interface, he would have been out of range by the time he regained control—if he had. The Io radar had tracked him far toward Jupiter before losing the tiny blip of the shuttle.

"Kiliath's shuttle was obviously hit by a bug," said McKay. "We can avoid that as before, I think. We'll match orbit with him when he comes past here."

"This will be the only chance," said the Fallaran. "Since the shuttle can change its velocity by only two miles a second, only Interface can put it on or off its present trajectory. Kiliath aimed to be within Interface range of Io on this pass, but unless course correction is made near the planet next time, the shuttle will be too far from here when it next crosses Io's orbit."

"We may have to abandon the shuttle, then," Slazeck remarked. "Velocity-change requirements in Jupiter's gravity well are gigantic. We should have brought extra tanks along."

"First our missiles gone, next our fuel. When's the shuttle going to pass Io?"

"Two more hours. Maybe we can pull Kiliath out of it before we go out of range—or set up an Interface for both ships. If we do have to take a wild ride around Jupiter—are we all going to go?"

"Whom were you thinking of leaving out?" Cathy asked ominously.

THE shuttle came swinging up from Jupiter on schedule, though radar had found it some time before. It was going to pass Io about a thousand miles beyond Interface range.

"What do you make of that, Walt?" asked McKay.

"Maybe the bug altered the emergence side of the Interface slightly. Our orbit wasn't exactly

matched with the Furtherance fleet."

"Maybe Kiliath made a manual course change for some reason."

"Maybe the Red Spot's a mascon, pulled him off course."

"Anyway, we're going after him," said McKay. "That's as close to Io as the shuttle will ever get. Even if we didn't have a friend aboard we'd be bound to try a rescue." He set up an Interface to project them for rendezvous. "Five minutes to go. Stand by."

There was quite a feeling of commitment, he had to admit as he burned backward through the disk into transfer orbit. He was launching the RLV into a close pass around that banded sphere, close enough to use the belts as highway markers. He would have to use a lot of fuel, down close to the planet, to achieve a course that would bring the ship back to Io. If he ran into trouble it would take a warship or one of the big freighters to get him out. McKay decided to go radar-invisible and get away from the shuttle after the rescue.

Slowly he closed with Kiliath's ship as the trajectory swung over its peak and began to lead him down toward the planet. McKay had allowed time here to save fuel. Eventually he made a transfer burn, a first bite out of the RLV's twelve mps total, and closed for the rendezvous.

The shuttle was the standard type he had seen, even used, on other missions—stub wings, no variable geometry, designed to enter and leave atmosphere through Interface. The RLV, designed as a unit of the Sasarenn War Fleet, could carry less but do a great deal more—for instance, go to Earth's Moon and back on its own power and fuel.

As it closed with the shuttle the RLV's bioscan picked out the same light traces over the hull as it had found on the *Darni*. By now McKay felt reasonably sure that he could link the two ships without the RLV's being "infected." He brought the ship in close, presenting the open airlock in the underside to the starboard hatch of the shuttle, and extended a flexible rescue tube from the RLV's lock to cover it. Sealed, pressurized, it gave him easy access to the shuttle.

There had been no radio contact with Kiliath, obviously, since the bug still covered the shuttle's outer hull. No doubt the RLV had been seen and recognized, however, from the cockpit; Kiliath would be waiting for rescue beyond the lock. Since the ship was intact, McKay thought all would be well inside, as with the *Darni*—and this proved to be overconfidence.

Kiliath was in the main cabin, unconscious. Two immediate explanations arose for the shuttle's change of orbit—first that it was a trap, second that it was straight-

forwardly due to mass increase. For the cabin was occupied by the humanoid servants of the Al Tanrai.

McKAY froze, floating in the shuttle's open lock. Once again he was the target of steadily trained guns. There was no way to talk to these creatures in their golden spacesuits because they had no individuality; their brains contained only the reflected thoughts of the Jackals themselves. They were, in effect, androids. Where were their controllers, the particular elements of the group-mind to which these served as hands and eyes? Nowhere on the shuttle, obviously; no pressurized, refrigerated tanks here. Perhaps there was a Jackal ship hovering nearby, itself radar-invisible; but McKay had made a full combat alert scan before the rendezvous. The RLV's rescue-mission sensors should have found it visually. If he could knock out the controllers, McKay knew, the slaves would be mindless; but it looked very much as if the controllers were down on Jupiter itself, out of reach.

He could talk to the controllers through the RLV computer, he knew from the Sarann encounter—whether he could talk to them through these creatures, he didn't know. He was still looking for something to say when the nearest of them moved, still covering McKay with his gun—making it clear by his angle of approach that McKay was to return to the RLV and that the Al Tanrai would follow McKay through the lock. The gun looked heavier than a Fallaran weapon designed for close quarters—it might well blow a hole in the RLV hull beyond. In their golden spacesuits—did they ever take them off?—the Jackals wouldn't mind, but McKay would. He backed down the tube and the creature grasped the lock sill and pulled itself in.

McKay's main worry was for Kiliath. Unless the Jackals had a nuclear device in the shuttle, they couldn't destroy the RLV; the shuttle itself was unarmed. The RLV's computer was conscious and functioning, the shuttle's obviously was not. And though the Al Tanrai couldn't know it, the relay embedded in McKay's skull responded quite effectively to crude mental states like "alarm." If anything, the computer was too sensitive to the Planetary Agent's worries; in his early days with the ship he often had had to calm it down. A similar unit in the RLV's satellite tender had killed a friend of his during the Sasarenn conflict. So, as McKay backed out of the connecting tube, he could almost feel the hidden weapons locking on the golden helmet that came through behind him.

There was an override to let him

enter the cabin with the outer door still open. McKay backed in, still with the Jackal gun pointing at his chest, feeling almost sorry for the enigmatic figure coming through the hatch. Unless this one was very careful, he wasn't going to get out alive.

"Everybody stay calm," said McKay. "Spread out some more."

Cathy was as white as a ghost, with every reason. Raiding on Earth, the Jackals had taken only women prisoners. They had taken Cathy on Sarann; Kiliath's second officer, the only one with her, had died trying to stop them. Having no individuality themselves, would the Al Tanrai recognize her—or seize her again?

The android was checking the cabin, without giving them any openings to jump him. Had he, or rather *they*, any idea of his danger? All the humans were wearing identity badges; the ship would shoot around them and over them.

Perhaps at that range the Jackals were using radio to boost their commands—or perhaps the android vocalized the thought prompting him to action. Over the cabin speakers, in the computer translation monotone, came the flat speech: "Identification—Earth humans. No samples required. Destroy and check control section."

McKay didn't have to do anything; the RLV computer knew now it had to act. The android took a step back to clear his weapon and open fire—and was hit simultaneously by bright, straight laser beams from all around the cabin. With an easy target, a humanoid shape, the computer had it all worked out—it hit the trigger hand, the muscles of that arm, a knee, the heart, pin-pointed by acoustic sensors (right of center). The RLV was a rescue ship, but its medic tapes knew no Hippocratic Oath.

The android flopped in zero-G like a rag doll trying to come apart, puffs of smoke squeezing through the holes in the suit. McKay dived for a wall panel to blow the tube out of the lock and slam the hatch, but in that he was too slow. The Al Tanrai and their slaves were not merely telepaths, they were a single mental entity. On reaction times they had a head start: McKay got the ship clear, but something was shut in with them. A strange screeching noise filled his ears—then the golden android and the whole cabin were turning around him. After that he blacked out completely.

EVENTUALLY he came back. He floated listlessly for a few seconds more, but his head was clearing fast. Slazeck, he saw, had managed to get an antidote from the medic tapes and was dosing the others. The golden figure of the android was gone, but one of the acceleration shields

was closed like a coffin, cutting down cabin space.

"They got the biological word on us from Cathy on Sarann," grunted Slazeck. "Time we learned more about them."

"Sure," said McKay, still dazed. "Did they try to get the body back, I wonder?"

"Looks like it. We're still on *external* anti-personnel alert and the guns have been fired."

"God, I hope we didn't hit Kiliath." McKay shook his head. "What's our present status?"

"Who knows?" Slazeck said grimly.

That woke McKay up—he pulled out his pocket communicator. Sure enough, the RLV perception circuits were blank, as had been the *Darni's* earlier. Only internal routine—power plant, life support—glowed in his head.

"Playback."

In seconds he had the end of the external recording: an exchange of shots with Jackals at the shuttle airlock; then something was fired from a long tube, spreading before it hit the hull, and darkness spreading from it around the outside of the ship, sealing out the planet, the moons, the shuttle and the stars.

"Listen—the bug's in line with the lock, about eight feet back. Maybe if we can knock out its nerve center we'll be able to see again. Have you looked out up front?"

"No, you do that and I'll suit up. I'll use the drilling laser on it, okay?"

McKay opened the connecting hatch to the cockpit, pulled himself through. The outer shutters were down and bright stars glittered across the windows. After years with the RLV, so narrow a field of view upset him. Without the perception circuits, the blank, unmarked controls would be the devil to use. There were no ordinary instruments, not even a radar screen.

He thumbed the personal communicator. "Can't see a thing from here, Walt. Stand by and I'll swing the ship."

"That'll take too long without instruments, Mac. If they're sitting out there covering the lock, they've got us cold anyway—but we've been out for two hours."

"Okay. Good luck, Walt."

In weightlessness, Slazeck had the option which way up he stood in the lock. He had chosen upside-down, so he could come out head first with the outer door half opened over him, where it would be when the ship was on the ground. He broke out the high-powered laser, intended for cutting into wrecked spaceships, and it came up with him like a machine-gun.

IV

SLAZECK, the man nothing surprised, could not say after-

ward if he had sworn, shouted wordlessly or been stunned to silence. Since he was out of the hull the others could not have heard him. He was looking down the hull, with the rectangular outer door raised like a trap above him. The Jackal bug was only feet away, poised impudently on its fragile stalk. Low in the lock, he saw only the wingtips and the foreshortened belly of the ship. And all the rest, so close that curvature was lost, was Jupiter like a flat, banded wall.

His brain ticked on behind his shocked face. The motors had not been used; another ship must have taken the Jackals off the shuttle and the field of their drive must have pushed the RLV toward the big planet. He had to get that bug! He aimed the heavy laser over the lock sill and let fly. The first shot only clipped the thing, but the second took it just above the stem and split it apart.

McKay's voice swelled presently in his headphones: "Fine, Walt, sensors are coming on—great God Almighty!"

"I'm coming back in, Mac," Slazeck radioed with no conscious irreverence. He pushed the laser down into the lock, bringing down the door behind him. Air was roaring in as he stowed the laser again.

He had no time to take off the suit. He opened the inner hatch, pulled upside-down into the cabin, turned over and down into a G-couch. The hatch and the radiation bulkhead closed behind him. His partner across the aisle, he noticed as his acceleration shielding closed, was the corpse of the Jackal android, entombed in its armor.

"Secondary boost, three-second warning," said McKay.

He hadn't a hope in hell of getting the RLV clear of the planet: the fusion motor was pointing straight down to kill as much as possible of their vertical component.

"I hope—" said Cathy, as the ship hung, sinking, on a blue column of intense fire. She started again. "I hope nobody minds that I'm scared, but please tell me what you're trying."

"We're trying to get a usable angle on the atmosphere, honey," said Devlin. "As it stands we're going straight in to burn up. If we can get our vertical component of velocity down to the same order of magnitude as the horizontal one, we may just be able to make an Earth-type entry."

"I see," said Cathy in a very small voice.

At full acceleration, the RLV's fuel went down with appalling speed. There wasn't the information to compute an entry window for Jupiter, but what they got looked reasonable. The last of their fuel burned away with about a minute to spare, and McKay set

the ship's attitude for entry with the greatest care.

A RED envelope of flame grew from under the nose, steaming up to meet above the ship. Another, sliding under the wings, went up to meet behind the tail fin. Holding that precious angle, the RLV fell into Jupiter.

"In this gravity the atmosphere layers corresponding to the Earth's are packed much more closely together," McKay announced. "See how much our path is flattening?"

"We're getting hypersonic bounce effect," said Devlin, plugged in as copilot.

"The last stage of that will be vital," said McKay. "When we shed this plasma envelope we're going to have to hit the bounce angle *exactly*. The layer corresponding in density to Earth's stratosphere will be so shallow that our optimum entry corridor is a line without dimensions. If we cut too deep into the atmosphere at this speed we'll melt, though we missed burning up. We've got far more wingspan than we need to stay up in this gravity—too hard a bounce will probably pull the wings right off."

"Cross your fingers, people," said Devlin. "Here it comes."

McKay had to leave this to the computer-autopilot, for its reactions and calculations were way ahead of his own. As the ionization faded there was some hair-raising juggling of data, with cascades of figures for temperature and stress running in the display; but at the end of it they were flying level in a very fast glide, with Jupiter's clouds spread below them like an immense plain. The deep yellow tint from space was almost gone; only a hint of it was left under the white tops of the clouds. The horizon was incredibly far away. Overhead the sky was deep blue, not too unlike Earth's at a corresponding altitude, but that wasn't oxygen scattering the light.

"Wow," said Devlin. "Nice piece of flying, ship."

"You said it."

"How will we get out of here?"

"Just like a woman," said Devlin. "We only just *got* here."

"We've lost a lot of our speed," said McKay. "If we had full tanks we could climb out again, but we don't have them."

"Only one way out of this," Slazeck commented from the rear. "The Furtherance will have to bring a relay to within ten thousand miles of the planet—then we can go straight home if we want."

"We will get out eventually?" Cathy asked.

"Of course we will," said McKay. He couldn't help adding: "Still, it's going to be one of the greatest flying stories of all time."

THE ship sped on, dipping slightly as its speed came down. Each

time the drop in altitude was slight, but produced enough extra lift to bounce them back up again. They could have skipped right around the Earth like that, but in this gravity the effect was insignificant. Eventually the ship began to descend noticeably and McKay touched off the fusion ramjets and leveled out.

"That makes me feel better," said Slazeck. "Stability, that's what I like."

"I don't feel much safer," said McKay. "Walt, how far down would you say those clouds are?"

"Hard to say, Mac. Radar shows big turbulence forty, fifty thousand feet down."

"Yeah. I bet the atmosphere down there's already denser than Earth sea-level—and it goes on down for a *long* way. We've got about thirty thousand feet separating us from the most violent environment in the Solar System, off the sun itself."

"That's not much, even in this gravity."

"You said it. One airpocket—or a major outbreak below us—and we are in big trouble. Jovian Clear Air Turbulence will take this ship apart, probably before we know it."

"You've talked me into leaving. Have you raised anyone by radio?"

"No chance. That's not so much an ionosphere up there—it's like trying to signal through a sheet of lightning. Do you remember the intensity of the radiation belts, out by Io?"

"We're going to see some pretty aurorae, come nightfall."

"I guess so, even at these latitudes. And the lower edges of the display won't be far above us. Notice what else is interfering with the radio?"

"The overall pattern's like lightning, but some of the peaks are gigantic."

"Jupiter's radio noise reaches Earth," said McKay. "There are some big storms around somewhere."

"So we may not be able to raise the expedition or the Furtherance fleet," Slazeck said slowly. "And if we were within ten thousand miles of an Interface relay, we might not be able to contact it. If that's true, Mac, our only way out of here is with the rocket."

"And we used all our fuel slowing down," McKay agreed grimly. "We do have equipment to process more, but it's a long slow job even in an atmosphere with so much free hydrogen. And since it requires modifying the air intakes and turning most of the fusion pile output to refrigeration, we can't do it unless we land somewhere."

"And solid ground is thousands of miles below us."

"Right. I don't know if the Furtherance ships can process fuel in flight; maybe the *Darni* could

come down and refuel us—if we can contact them in the first place."

"If we can contact them at all, they can position an Interface relay for us," Slazeck pointed out. "What about the Great Red Spot, skipper—isn't that supposed to be solid?"

"Nobody knew what that was when I read up on Jupiter," said McKay. "There was a theory that it might be a proto-satellite that never separated from the planet and floats like an iceberg on the denser atmosphere below. Parts of it might be solid enough for a touchdown."

"We'd have to leave the ship to set up the refueling apparatus."

"We could use the rescue systems: a manipulator unit on the front of a stretcher module. We'd find it impossible to work in suits, that's for sure."

"Surface gravity's higher than Earth's, isn't it?" Cathy put in. "That's why we're still in acceleration shields."

"Two point six four times what we can cope with," said McKay. "The Fallaran wouldn't find it so much trouble."

"Do you think the Jackals brought Kiliath down here?" Devlin asked.

"If they did they'll be much deeper than we are," said McKay. "We were worrying about how the Furtherance can find us on a surface area a hundred and twenty times the Earth's—and we're on the top of it! How can they find Kiliath underneath?"

NO ANSWERS came up. "Can we get back to the gravity for a moment?" Cathy asked at last. "Are we trapped in these shields—as if we'd used them as escape capsules?"

"Pretty much so," McKay replied. "You won't die of the gravity or even black out—but if you managed to get off the couch you might not get back. It's just as well these units can function as escape capsules—it means we've all got emergency procedures to hand."

"That's not much good to me," grunted Slazeck. "I'm still wearing a full spacesuit, remember? It's damned uncomfortable. I'm going to open the shielding and try to get some of it off."

"Take it easy, Walt."

"If I get into trouble I'll yell and you come running."

Slazeck worked his gauntlets off without too much trouble, but by the time he'd manipulated off his helmet he needed rest. They went back to discussing the landing possibility.

"How far is the Red Spot from us?" asked Devlin.

"Well, we're in the right hemisphere—I got our latitude from the sun, early on. We should be in the south tropical belt, but that's not a permanent feature of the planet; sometimes it splits or fades.

I didn't notice whether it could be seen from Io or Callisto—it seemed academic at the time—but if we're traveling in a clear strip within the belt we could run into big turbulence farther along. The Red Spot is mainly in the south temperate zone, but the south tropical belt curves around it to the north. In other words we'll hit the Spot eventually, but right now we could be flying toward it or away from it."

"We're flying away from the sun, that's for sure," said Devlin. "At this speed it'll be on the horizon in half an hour."

"We're in System One, the equatorial rotation zone," said McKay. "Twenty-eight thousand miles an hour, plus our airspeed."

"Shall we turn?"

"We can't outfly the sun on this planet—we'd only stretch the night. On this course darkness will last less than five hours."

The incredible distance of the horizon, the great flatness of Jupiter, emphasized the speed of the sun's arc towards the thickening haze. Only a quarter of its Earth size, the planet burned deeper red through greater thickness of atmosphere. Straight-edged shells of color crept over the clouds below, then fell upward to tinge the hull and the sluggish contrails drawn by the ship. As the spectacle grew, so did the turbulence below them. The charged layers of compressed atmosphere were lifting with nightfall; waves of lightning passed beneath toward the dark horizon as potentials changed in the clouds and their suspended ice crystals. In the deeps off to starboard some atmospheric system, supercharged with physical or chemical energy, suddenly tripped. A huge mushroom cloud, flattened almost beyond recognition, welled out of the blackness and stood like an autumn tree in the blood-red sunset. There were more eruptions across the field, like an evening growth of fungi, as the shadows began to stretch over the clouds themselves.

"We're making Mach one point two," McKay pointed out, mainly for Cathy. "We'll outfly the shockwaves from that burst on our right."

"Just as long as we don't get one in front of us," said Devlin. "It's like driving over flat country under random shelling."

"That's quite a shellburst," said Slazeck. "How many megatons would you need to make a stalk that big?"

As at the Earth's equator, full darkness fell like a blanket. There were aurorae as expected, thin sheets flitting across the stars close above them. There were meteors, too, with that mighty gravity to sweep down the asteroids; brilliant streaks across the sky, seeming close enough to touch. Now they could *see* just how

thin a layer of fragile stability was holding the ship. A fierce glow lit a circle of cloud from below and another dark fountain rose, but again the RLV passed by unshaken.

We have to get out of here . . .

"WE'D better go on a watch system," said Slazeck. "With two nights in every twenty-four hours, we can't go by local time. Let's you and me get some sleep, Mac—Dev can wake me before dawn."

Significantly older than the others, McKay was happy to be first for sleep. The effect might have been psychological, with the whole ship weighted down by Jupiter, but he felt exhausted. Later, sleep was less pleasant. Not nightmares, exactly, but a repeating, intensely sad image of the RLV, without fuel and somehow without power, going down, troubled him. Out of the sunlight, into the tops of the clouds that went down for thousands of miles, the rumble of their thunder reaching in through the hull; broken up by turbulence, crushed by mounting pressure, sometimes sinking into icy blackness, but always going down.

"Mac, wake up."

McKay snapped out of the hundredth descent with relief. Even a wild scare would be better than that recurring tragedy. They were coming through the dawn, through the colored layers into clear sunlight—and it revealed things McKay would have hated to have hit in the dark.

"I think we've found the Red Spot," snapped Slazeck. "Or, to be more accurate, I think the Red Spot's found us. Didn't you say it turned more slowly than the band we're in?"

"By about five minutes."

"Yeah well it's bigger than we are, you could say it's running *us* down. Mac, we got some star sights during the night; I made our speed nearly thirty thousand miles an hour. Subtracting Jupiter's spin and our airspeed leaves us in a seven-hundred-mile-per-hour jetstream. Adding the Spot's velocity to that puts us in big trouble!"

From this altitude their Jovian horizon had been seven hundred miles away. Now a rolling yellow stormwall was coming in from the right, cutting across their path at an ever sharper angle. Unstable layers of ice formed and dispersed in it. Lightning flickered all along it like an electric curtain. As Slazeck said, they were bearing down on it at nearly two thousand miles an hour.

"With the jets out we can't make enough speed in this gravity to get away from that," McKay agreed. "Can we get enough height to see over it?"

"Not a chance. We're near our ceiling now."

"If we knew there was a clear

vortex beyond, over the Spot itself, we might try to project the ship over the storm belt," said McKay. "But not knowing, we might well come down right in the worst of it."

"The wind may carry us around the outside," said Devlin. "The jetstream just might bank north around the storm wall as the lower layers are banking over the Spot."

"Then again a freak eddy might spin us right in there," said Slazeck. "Mac, I've plumb lost interest in taking the ship into that."

"The Spot's thirty thousand miles by seven thousand," said McKay. "It's like trying to outfly the Earth. I think we'd better turn around in this airstream, if we can. That'll give help about another three hours to find us; if not, better hope the wind sweeps us around."

"Take that real slow, Mac."

"You bet." Taking over from Devlin, McKay began to bank with slight left rudder. The ship didn't like it at all.

"This must be the biggest drift in the history of aviation," said Devlin. "Hey, look at those contrails blow!"

WHEN the ship was heading into the wind it felt less like a chip in the current, but the jets were only just beating it. System 1 was lapping the Spot at 250 mph, and they couldn't fight that as well. With the Spot astern but drawing steadily nearer, the impression that it was overtaking them was inescapable.

"Do you really think we'll be found in time, Mac?"

"I think there's a very good chance, Cathy. We've been down here nearly eight hours; the Fallaran must know we're in trouble. We've just come out of darkness and for a short while our contrail will have been in sunlight with the clouds still in darkness. If I had to search for a ship lost in the Jovian atmosphere, I'd concentrate my search on the terminator. Our rescue call's on automatic. The ship will tell us at once if anyone answers."

The storm wall grew more terrifying as it drew nearer. Conditions below it, where the atmospheric currents were climbing up the hidden face of the Spot, defied imagination. An endless 250 mph tidal wave—the atmosphere below had to be nearly as dense as Earth's oceans. Driven by the wind, were the clouds rolling up into surf as the "shore"—the rising curve of a world-sized body—grew shallow under them?

"If the Spot's so big," said Cathy, "I'm surprised we can't see the top of it over those clouds."

"The Red Spot's prominence has changed a lot in the centuries it's been under observation," said McKay. "It's ranged from brick red to a faint gray. It must be riding lower right now—"

"Radar contact, Mac."

The alert was superfluous since they were all fully plugged in—McKay had shared the detection of the echo. Another ship had come over the horizon ahead. It had to be on a suborbital trajectory; an orbit so close to the planet would have sped it across the sky very fast indeed. McKay's first surge of hope dimmed; the stranger wasn't big enough to be a Furtherance warship.

"Mac," Slazeck asked, "do you consider that ship may be one of the enemy?"

"It could be, Walt. The expedition does have some probes for the Jovian atmosphere, but if they'd detected us down here, I'd have expected a warship to come down."

"All our armament is gone except for four clumps of anti-missiles. Evasion maneuvers in this airstream and gravity will be precarious, especially with so little height to hack around in."

"We need help in any case—the Spot will be on us in another hour. Our radio call stays on."

"And pray the ship's one of ours," Devlin added.

Near the peak of its trajectory, the other ship was climbing slowly up the sky over them. It was almost overhead when the radio suddenly came to life.

"Acknowledge," McKay told the computer. "That's Kiliath's personal call."

A BRIGHT flare of rocket exhaust broke from the speck above them. Its trajectory broken, down the ship came, past the faint disks of Ganymede and Europa.

"Kiliath was in enemy hands," Devlin reminded McKay urgently. "This may be a trap."

McKay glanced again at the oncoming fury of the storm. "If it is, we'll bite." He opened the speech channel. "Kiliath, what is your condition?"

"I am well, friend McKay," said the flat computer-translation. "The Jackals told me, during interrogation, that they had consigned your ship to the Jovian depths. I thought they underestimated the RLV and that I might return past favors."

"We're damn glad to see you, I'll tell you that. How did you get away from the Al Tanrai?"

"They underestimated the Fallaran as well as mankind and your ship. I could move more freely down in Jupiter's deeps than their android slaves. I concealed the fact and they left only two guards over me while the rest of the crew were put into suspended animation. Eventually their relative paralysis gave me an opportunity and I fell upon them."

Some time, thought McKay, *I must ask Kiliath for a demonstration of his high-gravity strength. That he's here now is a good enough demonstration for*

the moment. Kiliath's ship was coming down into the atmosphere, planing toward them across the great sea of clouds. McKay realized that the ship was no Fallaran design.

"Is that a Jackal ship, Kiliath?"

"The kind they use for deep pentration into giant worlds, friend McKay. As soon as I broke the planet's surface I followed your line of flight."

"Then there are still no Interface relays within range of the planet?"

"I can find none. This ship, of course, has the Jackal drive; but with full tanks your RLV could get within range of the Io satellite."

The computer translation didn't always preserve trains of thought going from ET speech to English, but McKay had plenty of *non sequitur* practice. "Our tanks are empty, Kiliath. Do I understand that you can refuel us?"

"I believe so, friend McKay. This ship refuels itself in flight in the denser layers of the atmosphere. And there are ship-to-ship systems for transfer to more lightly built spaceships."

V

THE usual Jackal ships were conventional rocket shapes, quite slender, with the high-pressure tank for the group-mind elements at the thickest part of the hull. The ship now closing with the RLV was like a squat, solid version of the Fallaran supply ships: conical hull, delta wings sweeping back from near its nose, much less lifting surface than the RLV even at its full sweep. Its color was the faded black of a well-worn bowling ball. There was no time to find out if its fuel was the same as the RLV's, but if it would flash into incandescent plasma, going through the fusion pile, it should work. Kiliath came up behind the RLV, trailing a refueling boom and McKay opened the intake slot on top of the ship.

"Can you modify the Jackal probe to fit that?"

"Its shape can be modified for transfer to different types of vessel. I think I can match the RLV's inlet."

After two or three tries they had a good contact. Fuel began to flow between the two ships.

"Do you find that ship easy to fly?" asked Slazeck.

"The controls are laid out for humanoid operators," Kiliath reported. "Their perception circuits, unlike yours or ours, use the sense of touch extensively, but they can be mastered."

"You mean you can *feel* temperatures and stresses directly?"

"To some extent. Mainly one can feel the operation of internal systems, as if rocket motors could be part of one's own body. Damage to the ship must produce

a sense of shock and loss, if not actual pain."

A sudden turbulence shook the RLV, but McKay managed to keep the link with Kiliath. The storm front before the Red Spot was now much too close for comfort.

"Our tanks are nearly full," McKay radioed. "I'm setting up a return trajectory to Io. Will you have enough fuel now to get away?"

"No, I must drop again into denser layers to scoop in more hydrogen. However this ship is better able to cope with turbulence. You must escape at once."

The two ships swung apart, Kiliath's descending steeply toward pressure layers the RLV couldn't enter.

THE familiar blue flame erupted below, a sun at its center, a waterfall at its edge. The RLV climbed steadily out into space, across the huge world-within-a-world of the Red Spot. Beyond the storm wall great shockwaves streamed back, breaking eventually from the curve of the Spot into hurricane eddies. The RLV was a space vehicle again, on trajectory in a black sky.

McKay saw no need to make the point that they had enough fuel to *reach* Io, but not enough to catch it—Io was farther from Jupiter than the Moon from Earth, but went around it in forty-two and a half hours. If for any reason they couldn't connect with the Interface relay up there, they would be coming back to Jupiter at the speed they now left it.

More immediate to McKay was the worry about Kiliath. The RLV was well out from the planet before the Al Tanrai ship followed its path across the Red Spot. On full drive the Jackal ship could have made it to Io in seconds, but Kiliath doubted his own precision with the strange controls over such short distances. He was content to trail the RLV, slowly overhauling it as Io's disk moved into their path.

McKay made radio contact with the expedition as interference from Jupiter fell off. The alarm had been raised for the shuttle and the RLV hours ago, of course, but the shuttle trap had been worked from Amalthea, the innermost moon, and it had taken time to get an Interface relay down there and make safe the approaches to the planet. Trying to hold Amalthea had cost the Al Tanrai several ships: between the Interface weapon itself (it faced into the vicinity of blue stars and other things equally unpleasant) and the heavy bombardment of the Furtherance warships, they had lost heavily.

After the tension of the past hours McKay found it wonderful to leave attitude control to the autopilot, to open the accelera-

tion shields (from the ridiculous 2.64G to the sublime of weightlessness), clean up and cook a decent meal. The closed shield over the android's body was a grim reminder that the mission wasn't over, but right now they could unwind. The two ships floated out toward the Galilean moons, without incident and when Io filled the sky McKay acquired the orbital relay.

"Our worries are over," he told Kiliath moments later. "I've converted into stable orbit around the moon. Are you going to rendezvous with us or try for a landing?"

"A landing might be best," said Kiliath's translation. "I am still unsure of the drive settings and it seems easier to bring the ship to rest and lower it on rocket thrust."

"Okay, Kiliath. We'll stand by for you." McKay moved the ship back along its orbit in order to be well placed when Kiliath made his approach. He was still burning tail-first at minimal thrust through each Interface, in case the Jackal bugs were still active.

Decelerating, the captured Jackal ship fell past him. The tricky approach seemed good at first, but Kiliath was going down too fast.

"Correcting risks overcontrolling," Kiliath's channel said. "Friend McKay, could you set an Interface to slow this ship?"

"I'll give you one to subtract two thousand feet a second," said McKay. "You should be able to catch it on the rocket from there." On the RLV's display, he watched glowing lines trace the Interface ahead of Kiliath. Since he was only losing speed, not going elsewhere or even changing height, the Interface was invisible—all he saw through it was the face of the moon as before. As the ship went through, he wondered if Kiliath should have used rockets first to be on the safe side. Surely the Jackal bugs wouldn't attack their own ships . . .

Why not? Jackal ships weren't expected to go through Interface at all!

"Friend McKay," said the computer translation, tone still neutral but hesitancy implying emotion, "I am losing external visual sensors—"

"We're on our way!" Fully plugged in, McKay had only to give the ship one order to bring all systems up to rescue alert. Lock on the descending ship, Interface to match its path, motor on low burn—and they were alongside Kiliath, falling slowly toward the ice fields of Io.

"You're still in drive attitude, nose down," McKay radioed. "Do you have attitude control?"

"Nominally yes—the textual perceptions are still effective."

"Okay, we'll talk you around. Take it in the pitch axis, say ten de-

grees a second. We've got plenty of time."

McKay called off the turn as the triangular silhouette pivoted against the spreading face of the moon. With plenty of warning, Kiliath killed the turn when the ship was nose up.

"That's fine, start slowing her. Hold that attitude." The two ships' motors lit together, slowing their descent still further. McKay was thinking ahead to the tricky talk-down to the Fallaran base.

"Friend McKay—" The translation halted again, unable to speak an exclamation mark. "Internal sensors are now going out."

"So are your motors! There must be a safety cutoff when the pilot loses touch. Is there no automatic control?"

"None I can locate." Both ships were falling unpowered now, in order to stay together. They were descending at a slight angle to the ice plain. Acceleration was fortunately slow in this gravity.

"What reaction controls do you have left? Attitude?"

"Attitude control and horizontal thrusters for docking."

"Okay. We've lost most of our vertical component of velocity, it's about equal to the horizontal. You're going to hit at about ninety feet a second. Activate pitch and yaw controls and take her around to starboard. Keep it slow."

Without telling Kiliath, McKay was leaving him to fall. He had to continue the RLV retrofire. Motor flaring on primary boost, the RLV drew slowly up and back.

"Kill your yaw motion—that's fine. You're coming up to the pitch angle you want—kill it! Okay, you're lined up and going in fast. Hit those lateral thrusters. Impact's about twenty seconds away. You're shedding speed. Drop the nose, go for the full cushioning effect. Cut the thrusters—now!"

THE RLV drifted upright on low thrust as Kiliath's ship hit, bounced, hit again, became enveloped in a cloud of ice and ploughed in. Nothing could be seen or heard. McKay came down nearby, tilting the ship to kill the horizontal component. On the dimmer flame of the chemical motors he backed down on the tail landing blocks. Stabilizer booms snapped out from them.

The two hemispheres of ice crystals, one from the RLV motors, a much larger one over the Kiliath crash, spread slowly in the low-G vacuum, each crystal on its own distinct trajectory. Opaque at first, the clouds thinned, glittering, sinking and flattening like a depth-charge effect reversed. Still Kiliath didn't answer the radio.

"We'll have to get over there," said McKay, beginning to rise.

"You can't go," said Slazeck. "Whoever goes out there will be grounded for months—and as Earth's Planetary Agent you can't be spared."

"What's the problem?" Cathy asked.

"Radiation," McKay said briefly. "Io's in the most intense layer of Jupiter's radiation belts. Its movements have quite an effect on the natural radio signals from the planet. Our shielding's full on, but whoever goes for Kiliath will only have a spacesuit."

"As least experienced, I'm least valuable," said Devlin. "I'll get Kiliath out."

"You're a married man, Dev, and there's no such thing as a trivial radiation dose—not that this one is going to be trivial. I think this one's mine, Mac."

McKay nodded. "Second time this mission. Good luck again, Walt."

Except in training, this was the first time they'd had the ship upright. Slazeck went down, hand over hand, to what was normally the rear wall of the cabin, opening what was now the floor hatch into the airlock. Once again in the full spacesuit, he evacuated the lock and opened the outer door.

With the ship standing on its tail the rescue systems were harder to use. The outer door, normally a ramp to the ground, was now over Slazeck's head like an awning. McKay had to drop the stretcher unit on a cable to the lock and Slazeck had to extend the new lock floor as a platform, step out, and pull the sled over. The systems could adapt to almost any rescue situation, but all adaptations could not be equally convenient.

Slazeck started the jets, turning the sled on the platform to point at Kiliath's ship. In this low gravity it took only a little power to set him gliding out over the ice plain.

Leaving the ship in that frozen landscape was one of the loneliest experiences Slazeck had ever imagined. As soon as he left the shadow of the outer door Jupiter dominated him, ruling the sky overhead. Its light probed every crack and hollow in the ice field below; in a black sky, it was like incredible, brilliant moonlight.

BACK in the RLV, McKay watched him go like a slow, straight arrow toward the wreck. In a corner of the visual field the computer traced the ebb and flow of the radiation scouring the face of the moon. Slazeck would have to stay out of space for months after this to keep down his exposure for the year. McKay had all the scanners extended, the ship on full defense alert—for where were the Al Tanrai all this time? If they came over while the ship was on the icefield, better go radar-invisible and hope they didn't cast too long a shadow.

The same thought had occurred to Slazeck. "Mac, if you're attacked while I'm out here, you blast off and protect yourselves. I'll shelter in the Jackal ship till you can come back."

"Unless we're seen, it would be best to lie low," McKay replied. "We've nothing but some antimissiles left. You just get Kiliath out of there."

They were only twenty miles from the expedition base, but nothing there was better suited for the rescue than the RLV itself. McKay *would* have liked a Furtherance warship over them for cover.

He lost touch with Slazeck when the latter entered the Jackal ship. Devlin was suited up, ready to follow him across with more equipment if necessary—it would be worth grounding another member of the team to cut Slazeck's exposure, if Kiliath had to be cut out. But Slazeck reappeared in a few minutes, lowering the Furtherance officer on to the stretcher.

"I think he's only stunned," Slazeck reported. "No bones broken, anyway. The sled can bring us both back in this gravity."

"What's it like in there?" McKay asked as the stretcher unit lifted from the wreck. "The damage doesn't look bad from here."

"There's not much in there to be thrown about. It's completely austere, functional—bare metal—"

That figured, McKay was thinking: without thoughts of their own the androids needed nothing for comfort or stimulus—but the rest of Slazeck's description was drowned by crashing waves of radio interference.

AT THE touch of a switch the radar-baffling system went on—the electronic disturbance was caused by Jackal ships coming out of FTL drive. The sensors pinned the shockwaves to a small patch of sky, confirming their orientation toward Io. Moments later McKay detected the ships themselves, coming in very fast indeed, not far above the Ecliptic. Slazeck and Kiliath were halfway back across the icefield, heading straight for the open airlock. He couldn't do anything—but he didn't need to.

McKay had seen Interface conflict before, when the Sasarenn were expelled from the Earth-Moon system, but that had been a huge and complex battle. In this situation he had a better chance to appreciate Interface tactics. Obviously the Furtherance ships were conducting a textbook maneuver. What happened proved the superiority of rocket ships, with Interface, to the Jackal spacedrive. The thirteen ships of the squadron appeared around the Jackals, fired and were elsewhere, again and again. The thirteen ships, consid-

ered as missile platforms, became twenty-six, thirty-nine, fifty-two, sixty-five . . . Doing it backward, with motors at low thrust to burn the bugs away, they made the deadly combat more like an aerobatic display. The Jackal formation was englobed in a converging web of missile trails, so many at so many different angles that every evasive action was forestalled. The relatively high speed of the Al Tanrai simply elongated the pattern. The web completed itself with the Jackal ships at its foci, and expanding fireclouds blotted out the trails. In their first serious encounter with the Interface, the Cosmic Jackals had flown straight into one of the Fallaran classics.

Kiliath was beginning to come around by the time they brought his stretcher in through the rescue hatch. They got his helmet off, prepared various aids to recovery prescribed by the medic tapes—and by the time the fleet had made orbit and a shuttle was coming for him, Kiliath was well enough to tell his story.

"The Al Tanrai have to take on ballast to get their ships deep into Jupiter's atmosphere. At extreme depths the fuel tanks provide lift; the ship becomes a bathyscaph. It is very still down there, far below the storms; there may be currents, but there are no points of reference to reveal them. The solid core of the planet is still so far below that soundings cannot reach it. Nothing indicates a universe above. Until the humanoids reached them in their own world, the Al Tanrai must have thought themselves the absolute lords of creation. They open their pressure tanks and float free of the ships, like huge jellyfish.

"As I told you, they put most of their androids into hibernation when they go down into the high gravity. I broke free and overpowered the two remaining; then I closed the pressure tank and jettisoned all ballast. With the pressure section empty, rising at maximum speed, I could not be overtaken; but I left missiles floating at higher levels to stop pursuit. Even if the motors did not work, the warheads would explode on proximity, making great concussion waves. On the surface, more explosions would never be noticed."

McKay nodded grimly. "There doesn't seem to be any common ground with such creatures. The way they keep taking specimens, I'm sure they're looking for new servants."

"There can never be compatibility with them," said Kiliath. The flat voice from the cabin speaker was hesitating as the computer failed to express emotional meaning. "They will oppose the spread of the Interface into the regions they control."

Kiliath's eyes were incredibly bright between their skin folds. "*Nothing* must interfere with the Interface. Furtherance must overcome every obstacle."

THERE wasn't room in the RLV cabin, particularly with the ship upright, but McKay had a strong impulse to back away. Again, as with the Sasarenn, the Fallaran were creating an enemy—advancing the Interface at whatever risk to the worlds and races in its path. Their dedication was much too strong to contest. What, he wondered, could have been their original motivation?

"Here comes the shuttle, Mac," said Devlin.

The little ship burned down only yards from the RLV. Kiliath was lowered from the lock and taken across to safety.

"Do you have enough fuel to leave here?" he asked McKay by radio.

"Just enough. We'll go through Interface to the Earth satellite; refuel, rearm, take Walt down to Montana. Give us a day's rest and we'll be back."

"Goodbye then, friend McKay." The shuttle took off, climbing away to join the orbiting fleet.

"Well, that's that for the moment," said Devlin.

There was a feeling of anticlimax.

"For the moment." McKay climbed back to the cockpit as the others settled on their couches. Systems check; close radiation bulkheads and acceleration shields. "Let's go home, children."

The ship rose on the chemical motors in a cloud of ice and fire; a short brilliant burst on the fusion motor set it climbing toward a safe Interface altitude.

They were coasting straight towards the banded globe of Jupiter, as if—heaven forbid!—they were going back there.

"That's going to be our headache," said McKay, gazing at the planet. "Supposedly there's to be joint human-Fallaran exploitation of the Jupiter system, with first the supplies, later the ships and equipment, coming from Earth—a big lift for our space technology. But there may still be Al Tanrai down there, coming up to raid us. As a group-mind, they can communicate on and from Jupiter where we can't. And more of their ships can dive in from space to reinforce them. An Interface relay has a range of ten thousand miles and costs a planet's ransom—how many would you need to blockade a planet that size?"

No one spoke.

"That's a closed world to us, that we were lucky to get off the roof of," McKay said ungrammatically. "How could we tell, for instance, if they found allies down there?" ★

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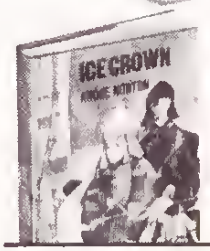
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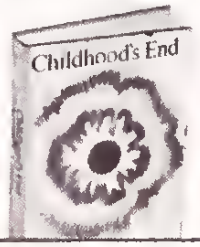


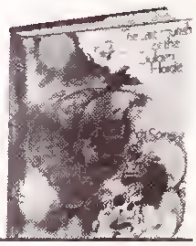
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